

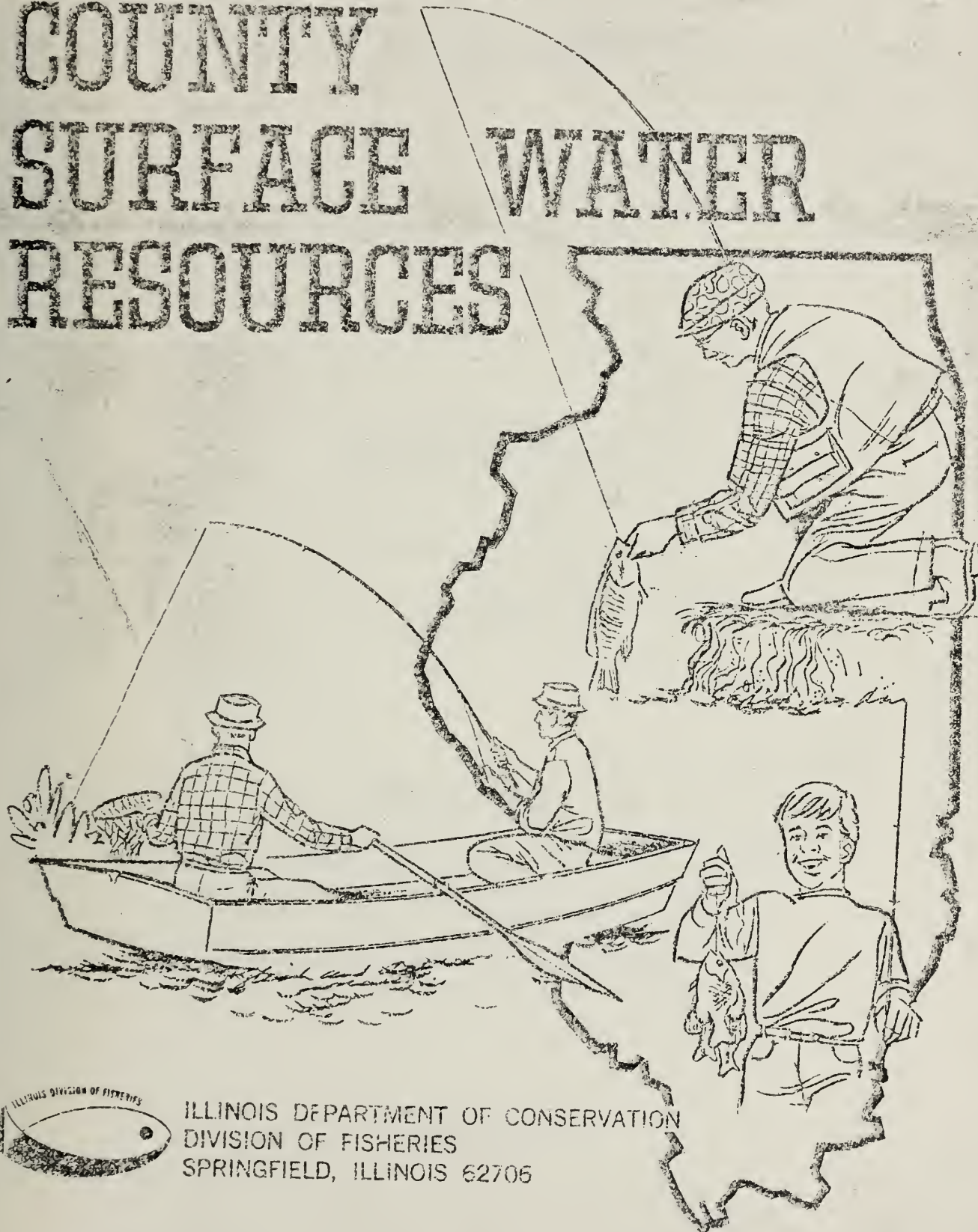
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# FRANKLIN COUNTY SURFACE WATER RESOURCES



ILLINOIS DEPARTMENT OF CONSERVATION  
DIVISION OF FISHERIES  
SPRINGFIELD, ILLINOIS 62706

#### ACKNOWLEDGEMENTS

DATA FOR THIS REPORT WAS OBTAINED FROM INFORMATION AVAILABLE IN THE FILES OF THE DEPARTMENT OF CONSERVATION, AND OTHER COUNTY AND STATE AGENCIES ASSOCIATED WITH CONSERVATION. THE REPORT WAS EDITED BY O. M. PRICE, AREA FISHERY BIOLOGIST AND A. C. LOPINOT, CHIEF FISHERY BIOLOGIST. THE FINAL MANUSCRIPT FOR PRINTING WAS TYPED BY ANN HAVEY, TYPIST.

ILLINOIS DEPARTMENT OF CONSERVATION  
DIVISION OF FISHERIES

FRANKLIN COUNTY  
SURFACE WATER RESOURCES

BY

JAMES S. ALLEN

&

TOM WAYNE  
FISHERIES BIOLOGISTS

AUGUST, 1974



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## PREFACE

THE HIGHER STANDARD OF LIVING ENJOYED TODAY BY ILLINOIS' CITIZENS HAS RESULTED IN AN INCREASED AMOUNT OF LEISURE TIME TO PURSUE OUTDOOR RECREATION. THERE HAS BEEN AN INCREASED INTEREST IN BOATING, SAILING, CANOEING, WATER-SKIING, FISHING, SKIN DIVING, AND OTHER WATER ASSOCIATED SPORTS. DEMANDS BY INDUSTRY, AGRICULTURE AND URBAN EXPANSION HAVE ALSO PLACED HEAVY BURDENS ON SURFACE WATERS. IT IS TIME TO TAKE STOCK OF OUR EXISTING AND POTENTIAL RESOURCES AND PROBLEMS TO PLAN FOR THE FUTURE.

A COUNTY WATER RESOURCE REPORT, SUCH AS THIS ONE, IS AN ATTEMPT BY THE DIVISION OF FISHERIES OF THE ILLINOIS DEPARTMENT OF CONSERVATION TO SUMMARIZE DATA ON THE MORE IMPORTANT EXISTING WATER RESOURCES AND THEIR RECREATIONAL VALUE. WITH THIS DATA AVAILABLE, A METHOD TO APPORTION USAGE OF WATER IN THE BEST INTEREST OF THE PUBLIC CAN DETERMINED TOGETHER WITH THE POTENTIAL NEEDS.

THIS INVENTORY IS AN EXTENSIVE SURVEY OF THE SURFACE WATER RESOURCES AND RELATED ITEMS IN FRANKLIN COUNTY. EMPHASIS HAS BEEN PLACED ON THE AREAS OF GREATEST USE AND RECREATIONAL VALUE. THE INFORMATION PROVIDED IN THIS REPORT HAS BEEN OBTAINED FROM PAST RECORDS ON FILE IN THE ILLINOIS DEPARTMENT OF CONSERVATION, OTHER CONSERVATION AGENCIES, AND DATA COLLECTED BY FISHERY BIOLOGISTS AND FISH CONSERVATION AGENTS.

IN 1964, WITH THE PUBLICATION OF "ILLINOIS SURFACE WATER INVENTORY", THE DIVISION OF FISHERIES PROVIDED THE STATE WITH THE FIRST STATISTICAL SUMMARY OF SURFACE WATER RESOURCES. THIS WAS A COMPILATION OF WATERS IN EACH COUNTY WITH NO EVALUATION AS TO THEIR USE. IN ORDER TO HAVE MORE COMPLETE DATA AVAILABLE FOR PLANNING, THE DIVISION OF FISHERIES INAUGURATED A PROGRAM IN 1966 WHEREBY DETAILED WATER RESOURCE REPORTS WERE TO BE PREPARED FOR EACH OF THE 102 COUNTIES IN ILLINOIS.

THESE REPORTS SHOULD ASSIST IN LONG-RANGE PLANNING AND DEVELOPMENT OF THE STATES WATER RESOURCES TO MEET THE NEEDS OF THE FUTURE.

A. C. LOPINOT  
CHIEF FISHERIES BIOLOGIST





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## ABSTRACT

FRANKLIN COUNTY, LOCATED IN SOUTHERN ILLINOIS ABOUT 80 MILES SOUTHEAST OF ST. LOUIS, MISSOURI, WAS COVERED BY THE ILLINOIAN GLACIER ABOUT 15,000 YEARS AGO. TOPOGRAPHY IS CHARACTERIZED BY RELATIVELY LOW RELIEF WITH UPLAND PRAIRIES AND BROAD ALLUVIATED VALLEYS ALONG THE LARGER STREAMS. A RELATIVELY COMPLETE DRAINAGE SYSTEM EXISTS AND MOST STREAMS HAVE BROAD TERRACED VALLEYS AND LOW GRADIENTS. NATURAL DRAINAGE IS GOOD THROUGHOUT THE UPLAND AREAS BUT THE LARGER VALLEY BOTTOMS ARE POORLY DRAIN-ED. BOTH OIL AND COAL ARE PRODUCED IN THE COUNTY; THE LATTER FROM UNDERGROUND MINES.

THE CLIMATE IS CONTINENTAL WITH A GROWING SEASON OF ABOUT 190 DAYS, A TEMPERATURE RANGE OF ABOUT 100° FAHRENHEIT, AND AN ANNUAL RAINFALL OF ABOUT 41 INCHES.

THERE ARE 16 PUBLIC AND ORGANIZATIONAL LAKES OF 6.0 SURFACE ACRES OR MORE WITH A COMBINED TOTAL OF 9,328.8 ACRES. TEN OF THESE ARE OPEN TO PUBLIC FISHING. IN AD-DITION THERE ARE APPROXIMATELY 1,500 PRIVATELY OWNED LAKES AND PONDS COMPRISING ABOUT 900 ACRES OF WATER. TWO FEE FISHING AREAS ARE IN THE COUNTY; EACH OFFERING A VARIETY OF FISHES INCLUDING LARGEMOUTH BASS, BLUEGILL AND CHANNEL CATFISH.

REND LAKE IS THE LARGEST IMPOUNDMENT, PROVIDING A VARIETY OF WATER ORIENTED REC-REATIONAL ACTIVITIES. IT HAS DEVELOPED INTO AN EXCELLENT FISHING LAKE WITH LARGEMOUTH BASS, CRAPPIE AND BLUEGILL BEING THE PRINCIPAL SPECIES. IN ADDITION, CHANNEL CATFISH, BULLHEADS, FRESHWATER DRUM, CARP AND NORTHERN PIKE ADD VARIETY TO THE FISHERY.

THERE ARE FOUR PRINCIPAL STREAMS WITH A COMBINED LENGTH OF 75 MILES AND AN AREA OF 314 ACRES. THE BIG MUDDY IS THE MOST IMPORTANT RECREATIONAL STREAM, PROVIDING A SIGNIFICANT FISHERY FOR CHANNEL CATFISH, CRAPPIE, BULLHEADS, FRESHWATER DRUM, AND CARP IMMEDIATELY BELOW REND LAKE.

WITH 38,329 RESIDENTS IN 1970 THE COUNTY RANKED 35TH IN POPULATION AMONG THE 102 COUNTIES OF THE STATE. THE POPULATION IS EXPECTED TO INCREASE TO 48,000 BY 2020. IN 1970 THE POPULATION DENSITY WAS 87 PEOPLE PER SQUARE MILE IN THE COUNTY WHICH EN-COMPASSES AN AREA OF 434 SQUARE MILES.

SILTATION AND ACID MINE WASTES ARE THE MOST IMPORTANT SURFACE WATER PROBLEMS. THE USE OF PESTICIDES, THE LONG RANGE EFFECTS OF WHICH ARE IMPERFECTLY UNDERSTOOD, ALSO POSES AN ENVIRONMENTAL PROBLEM.



## GENERAL SETTING OF THE SURFACE WATERS IN FRANKLIN COUNTY

FRANKLIN COUNTY IS LOCATED IN SOUTHERN ILLINOIS ABOUT 80 MILES SOUTHEAST OF ST. LOUIS, MISSOURI. THE COUNTY WAS ESTABLISHED ON JANUARY 2, 1818 AND NAMED AFTER BENJAMIN FRANKLIN (BARRETT, 1952). BENTON IS THE COUNTY SEAT.

THE COUNTY IS MADE UP OF 10 COMPLETE TOWNSHIPS AND PARTS OF 2 OTHERS. IT MEASURES 18 MILES NORTH TO SOUTH AND 24 MILES EAST TO WEST. IT IS BORDERED ON THE NORTH BY JEFFERSON COUNTY, ON THE SOUTH BY WILLIAMSON COUNTY, ON THE EAST BY HAMILTON AND SALINE COUNTIES, AND ON THE WEST BY JACKSON AND PERRY COUNTIES.

OF ILLINOIS' 102 COUNTIES, IT RANKS 67<sup>TH</sup> IN AREA (THE SAME AS SCHUYLER COUNTY) WITH 434 SQUARE MILES, AND 35<sup>TH</sup> IN POPULATION IN 1970 WHEN THERE WERE 38,329 RESIDENTS (ILLINOIS COOP. EXT. SERVICE, 1971). THE POPULATION IS 48.1 PERCENT URBAN (PETERSON, 1967).

TRANSPORTATION FACILITIES INCLUDE INTERSTATE ROUTE 57 RUNNING NORTH AND SOUTH, STATE ROUTES 37 AND 148 RUNNING NORTH AND SOUTH, STATE ROUTES 183, 14, 149 AND 34 RUNNING EAST AND WEST, AND AN EXTENSIVE NETWORK OF ALL-WEATHER ROADS. THE COUNTY IS ALSO SERVED BY THE ILLINOIS CENTRAL, MISSOURI PACIFIC, CHICAGO BURLINGTON AND QUINCY, AND CENTRAL AND EASTERN ILLINOIS RAILROADS.

A WIDE ANNUAL TEMPERATURE OF ABOUT 100 DEGREES OCCURS IN THE COUNTY WITH MAXIMUMS NEAR 100° F. AND MINIMUMS NEAR ZERO. ANNUAL PRECIPITATION IS ABOUT 40 INCHES PER YEAR. MAY IS NORMALLY THE WETTEST MONTH AND DECEMBER THE DRIEST.

### PHYSIOGRAPHY

THE TOPOGRAPHY OF FRANKLIN COUNTY IS RATHER UNIFORMLY ROLLING WITH NARROW STREAM VALLEYS AND LOW GRADIENT UPLANDS. TOTAL RELIEF IS APPROXIMATELY 320 FEET. MAXIMUM ELEVATION REACHES ABOUT 570 FEET ABOVE MEAN SEA LEVEL AT A POINT 4 MILES NORTHWEST OF MACEDONIA IN THE NORTHEAST CORNER OF THE COUNTY. THE LOWEST ELEVATION IS ABOUT 350 FEET M.S.L.; THE POINT WHERE THE BIG MUDDY LEAVES THE COUNTY NEAR THE SOUTHWEST CORNER.

### CLIMATE

FRANKLIN COUNTY HAS THE CONTINENTAL CLIMATE TYPICAL OF SOUTHERN ILLINOIS, WITH MAXIMUMS NEAR 100 DEGREES FAHRENHEIT AND MINIMUMS NEAR ZERO. SUMMERS ARE WARM. CONTINUOUS WARM PERIODS CAN BE PROLONGED, SINCE COLD AIR INVASIONS FROM THE NORTH OFTEN FAIL TO PENETRATE AS FAR SOUTH AS FRANKLIN COUNTY.

TEMPERATURE DATA IS NOT RECORDED AT THE BENTON WEATHER STATION; AT DUQUOIN, IN PERRY COUNTY, JANUARY IS NORMALLY THE COLDEST MONTH AND JULY THE WARMEST. THE HIGHEST TEMPERATURE RECORDED WAS 113 DEGREES FAHRENHEIT AND THE LOWEST -22.

ANNUAL PRECIPITATION IN FRANKLIN COUNTY IS ABOUT 40.5 INCHES, RANGING FROM AN AVERAGE OF 2.59 INCHES IN FEBRUARY (THE DRIEST MONTH) TO 4.07 INCHES IN MAY (THE WETTEST MONTH).

THE NEAREST SNOWFALL RECORDING STATION IS AT MT. VERNON WHERE THE AVERAGE YEARLY TOTAL IS 13.8 INCHES. IN A 10-YEAR PERIOD BEGINNING IN 1951, THE GREATEST SNOWFALL WAS 17.7 INCHES IN MARCH OF 1960. TOTAL SNOWFALL FOR THAT YEAR WAS 28.2 INCHES. IN 6 OF THE 10 YEARS, NOT ENOUGH SNOW FELL TO BE RECORDED (U. S. DEPT. OF COMMERCE, 1964).





FIGURE 1

Location of Franklin  
County Within the State

FIGURE 2  
LOCATION OF PRINCIPAL TOWNS AND HIGHWAYS WITHIN FRANKLIN COUNTY

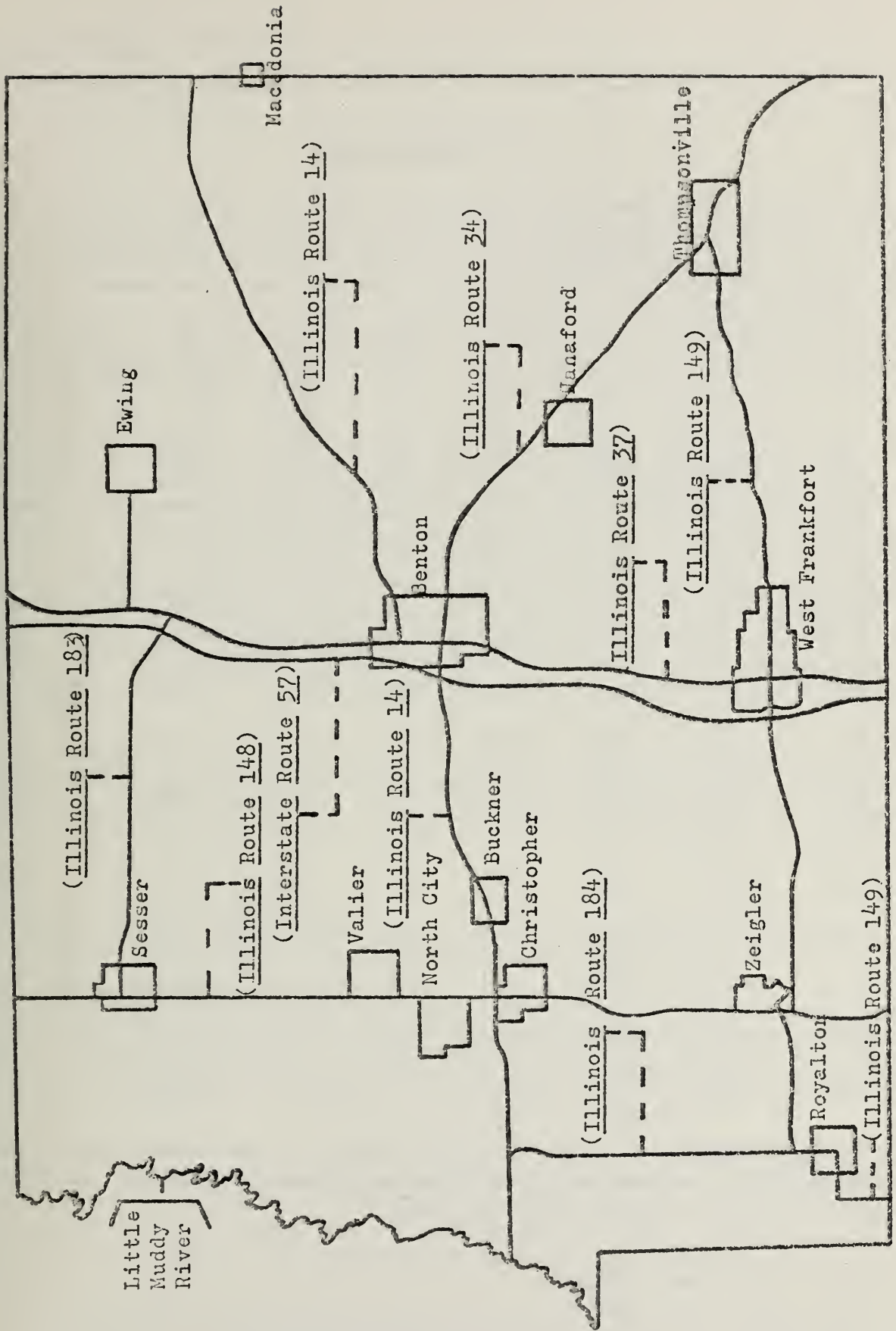


TABLE 1

CLIMATOLOGICAL DATA

Month	Temperature			Precipitation			
	Mean Daily Maximum	Mean Daily Minimum	Mean Monthly	Record Highest	Record Lowest	Normal Monthly Total	Total Snowfall
Jan.	43.2	24.7	34.8	76	-22	3.40	SNOWFALL DATA NOT AVAILABLE
Feb.	46.2	26.9	37.7	79	-21	2.59	
Mar.	57.0	35.6	45.6	92	-5	3.69	
Apr.	68.1	45.0	57.0	92	20	3.94	
May	78.1	54.4	66.5	97	29	4.07	
June	86.8	63.1	75.6	105	39	3.58	
July	91.2	66.4	79.0	113	47	3.07	
Aug.	90.0	65.0	77.8	113	43	3.80	
Sept.	83.7	57.8	70.6	108	27	3.40	
Oct.	72.4	46.0	59.7	96	20	2.84	
Nov.	57.3	35.1	46.0	85	-4	3.28	
Dec.	45.4	27.3	37.1	76	-15	2.82	

Precipitation records from Benton weather station; other data from DuQuoin weather station in Perry County.

(U.S. Dept. Comm., 1964)

THE GROWING SEASON, BASED UPON THE AVERAGE DATE OF THE LAST FREEZING TEMPERATURE (32° F. OR BELOW IN THE SPRING AND THE AVERAGE DATE OF THE FIRST SUCH TEMPERATURE OCCURRENCE IN THE FALL, IS APPROXIMATELY 190 DAYS IN FRANKLIN COUNTY, (Joos, 1960).

## GEOLOGY

ALTHOUGH THE AGE OF THE EARTH IS MEASURED IN BILLIONS OF YEARS, THE FACE OF ILLINOIS IS RELATIVELY YOUNG, BEING ONLY 15,000 YEARS OLD. DURING THE ICE AGE, MOST OF THE STATE WAS INVADDED BY HUGE GLACIERS THAT CARRIED GROUND UP ROCK MATERIALS GOUGED OUT OF BEDROCK TO THE NORTH. WHEN THE LAST OF THE GLACIERS MELTED, ABOUT 15,000 YEARS AGO, THE EARTH LOOKED FAR DIFFERENT FROM THE PRE-GLACIAL LAND. OLD HILLS AND VALLEYS HAD VANISHED, NEW ONES HAD FORMED AND A LAYER OF UNCONSOLIDATED ROCK MATERIAL (GLACIAL DRIFT) HAD BEEN BROUGHT IN BY THE GLACIERS AND DEPOSITED AS THE ICE MELTED (Frye, 1961).

FRANKLIN COUNTY WAS COVERED BY THE ILLINOIAN GLACIER. PHYSIOGRAPHICALLY, THE COUNTY LIES IN THE TILL PLAINS SECTION OF THE CENTRAL LOWLAND PROVINCE. THE MT. VERNON HILL COUNTRY, A SUB-DIVISION OF THE TILL PLAINS SECTION, COMPRISES THE SOUTHERN PORTION OF THE ILLINOIAN GLACIER AND IS CHARACTERIZED BY MATURE TOPOGRAPHY OF LOW RELIEF WITH RESTRICTED UPLAND PRAIRIES AND BROAD ALLUVIATED VALLEYS ALONG THE LARGER STREAMS. A RELATIVELY COMPLETE DRAINAGE SYSTEM EXISTS AND MOST STREAMS HAVE BROAD TERRACED VALLEYS AND LOW GRADIENTS. NATURAL DRAINAGE IS GOOD THROUGHOUT THE UPLAND AREA, BUT THE LARGER VALLEY BOTTOMS ARE POORLY DRAINED. EXTENSIVE AGGRADED LOWLANDS ALONG THE BIG MUDDY RIVER BASIN ARE OUTSTANDING PHYSIOGRAPHIC FEATURES. THE PRESENT LAND SURFACE IS PRIMARILY BEDROCK OF LOW RELIEF, BEING ONLY SLIGHTLY MODIFIED BY THE ILLINOIAN DRIFT, WHICH IS THIN IN THE AREA.

THE MINERAL FUELS, COAL AND PETROLEUM, ARE THE LEADING MINERAL PRODUCTS OF ILLINOIS, MAKING UP ABOUT 70 PERCENT OF THE ANNUAL VALUE OF ALL MINERALS PRODUCED IN THE STATE. FRANKLIN COUNTY IS A PRODUCER OF BOTH OIL AND COAL, THE LATTER BEING PRODUCED BY UNDERGROUND MINES (Frye, 1961).

## DRAINAGE

FRANKLIN COUNTY, EXCEPT FOR A SMALL SECTION IN THE EXTREME SOUTHEASTERN CORNER, DRAINS SOUTHWESTERLY THROUGH THE BIG MUDDY RIVER SYSTEM.

THE BIG MUDDY ITSELF HAS RECENTLY BEEN IMPOUNDED A FEW MILES NORTHWEST OF BENTON TO FORM ONE OF THE STATE'S NEWEST AND SECOND LARGEST MAN-MADE WATER AREAS, REND LAKE. ONE OF THE PRIMARY FUNCTIONS OF THE LAKE IS TO PROVIDE FLOOD CONTROL ALONG THE BIG MUDDY RIVER FLOODPLAIN. THE RIVER DRAINS THE CENTRAL AND SOUTHWESTERN PART OF THE COUNTY, LEAVING IT ABOUT  $\frac{1}{2}$  MILE SOUTH OF ROYALTON.

THE MIDDLE FORK OF THE BIG MUDDY DRAINS THE EASTERN AND SOUTH CENTRAL PART OF THE COUNTY, ENTERING THE BIG MUDDY ABOUT 2 MILES NORTHEAST OF ZEIGLER.

ALONG MOST OF THE WESTERN EDGE OF THE COUNTY, DRAINAGE IS INTO THE LITTLE MUDDY RIVER WHICH FORMS A BORDER BETWEEN FRANKLIN AND PERRY COUNTIES.

WITH THE EXCEPTION OF A FEW MILES OF STREAM NEAR BENTON AND WEST FRANKFORT, THERE HAS BEEN VERY LITTLE ALTERATION OF THE STREAMS IN FRANKLIN COUNTY BY STRAIGHTENING AND DREDGING TO INCREASE FLOW.



## SOILS

"MANY OF THE ITEMS WHICH ASSIST IN THE SATISFACTION OF HUMAN WANTS AND NEEDS ORIGINATE IN SOILS. SOIL IS THE MEDIUM IN WHICH PLANT LIFE GROWS, WHICH IN TURN IS THE FOOD FOR OUR DOMESTIC LIVESTOCK, OUR WILDLIFE, OUR WATERFOWL AND DIRECTLY OR INDIRECTLY, MAN HIMSELF. IN THE ULTIMATE, SOILS SUSTAIN HUMAN LIFE AND WELFARE" (SAWYER, 1970).

A NUMBER OF FACTORS ARE RESPONSIBLE FOR SOIL DEVELOPMENT. WORKING IN VARIOUS COMBINATIONS, THE FACTORS INCLUDE PARENT MATERIAL, CLIMATE, PLANTS, ANIMALS, RELIEF AND TIME.

THE PRINCIPAL PARENT MATERIALS OF FRANKLIN COUNTY SOILS CONSIST OF ALLUVIUM, LOESS, AND OUTWASH. ALLUVIAL SOILS ARE SEDIMENTS DEPOSITED BY STREAMS ON THEIR FLOODPLAINS AND IN FRANKLIN ARE FOUND IN THE BASIN OF REND LAKE. LOESS IS A SILTY WIND DEPOSIT OCCURRING IN THE UPLANDS. OUTWASH SOILS WERE DEPOSITED BY GLACIAL MELTWATERS AND ARE FOUND IN THE COUNTY IN THE BIG MUDDY RIVER FLOODPLAIN BELOW REND LAKE.

CLIMATE AFFECTS THE RATE OF WEATHERING OF PARENT MATERIAL. THE HUMID TEMPERATE CLIMATE OF THE COUNTY IS CONDUCIVE TO THE BREAKDOWN OF SOIL MINERALS, THE FORMATION OF CLAY, AND THE MOVEMENT OF THESE MATERIALS DOWNWARD IN THE SOIL.

THE UPLAND SOILS OF THE COUNTY FORMED UNDER FOREST VEGETATION. SMALL BURROWING ANIMALS, INSECTS, GRUBS, EARTHWORMS, CRAWFISH, FUNGI, AND OTHER ORGANISMS INFLUENCE SOIL FORMATION BY ADDING ORGANIC MATTER AND BY HELPING BREAK DOWN PLANT REMAINS.

RELIEF CONTROLS THE AMOUNT OF MOISTURE IN THE SOIL BY INFLUENCING THE AMOUNT OF RUNOFF, THE DEGREE OF EROSION, AND THE AMOUNT OF WATER INFILTRATING THE SOIL. ON STEEP SLOPES GEOLOGIC EROSION IS LIKELY TO KEEP PACE WITH SOIL DEVELOPMENT, MAKING THEM THIN AND WEAKLY DEVELOPED.

TIME BECOMES A FACTOR IN SOIL DEVELOPMENT BY ITS RELATION TO THE OTHER FACTORS. LIME CONTENT, PERMEABILITY, HUMIDITY, AND RELIEF ALL EXERT THEIR EFFECTS IN RELATION TO TIME (WALLACE & FEHRENBACHER, 1969).

A REVIEW OF THE LEGEND FOLLOWING THE SOIL MAP SHOWS THAT SOIL FERTILITY IS A PROBLEM IN PART OF THE COUNTY (FIGURE 4). A FISH POPULATION, IN TERMS OF POUNDS OF FISH PRODUCED PER SURFACE ACRE OF WATER, IS INFLUENCED BY SOIL FERTILITY. PONDS OR LAKES BUILT IN FERTILE SOILS HAVE A GREATER CARRYING CAPACITY THAN WATER AREAS CONSTRUCTED IN INFERTILE SOILS.

- 3. Middle Fork Big Muddy River
- 4. Middle Fork Saline River

- 1. Little Muddy River
- 2. Big Muddy River

GENERAL HIGHWAY MAP

# FRANKLIN COUNTY ILLINOIS

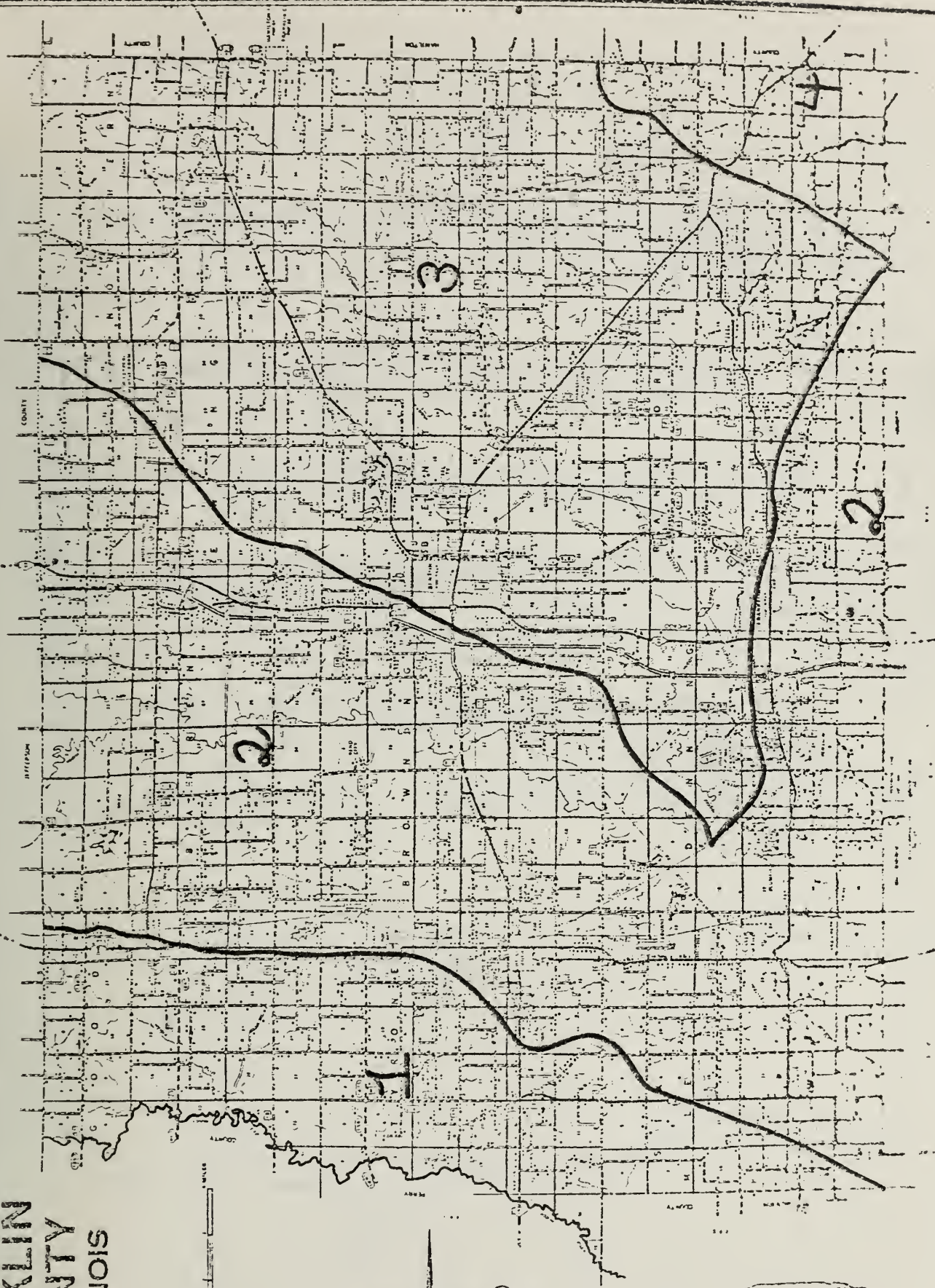
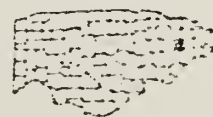
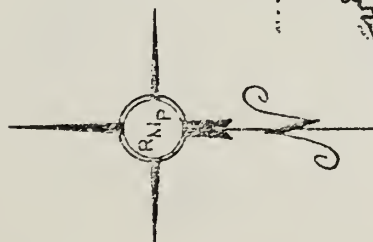
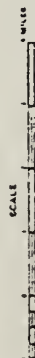
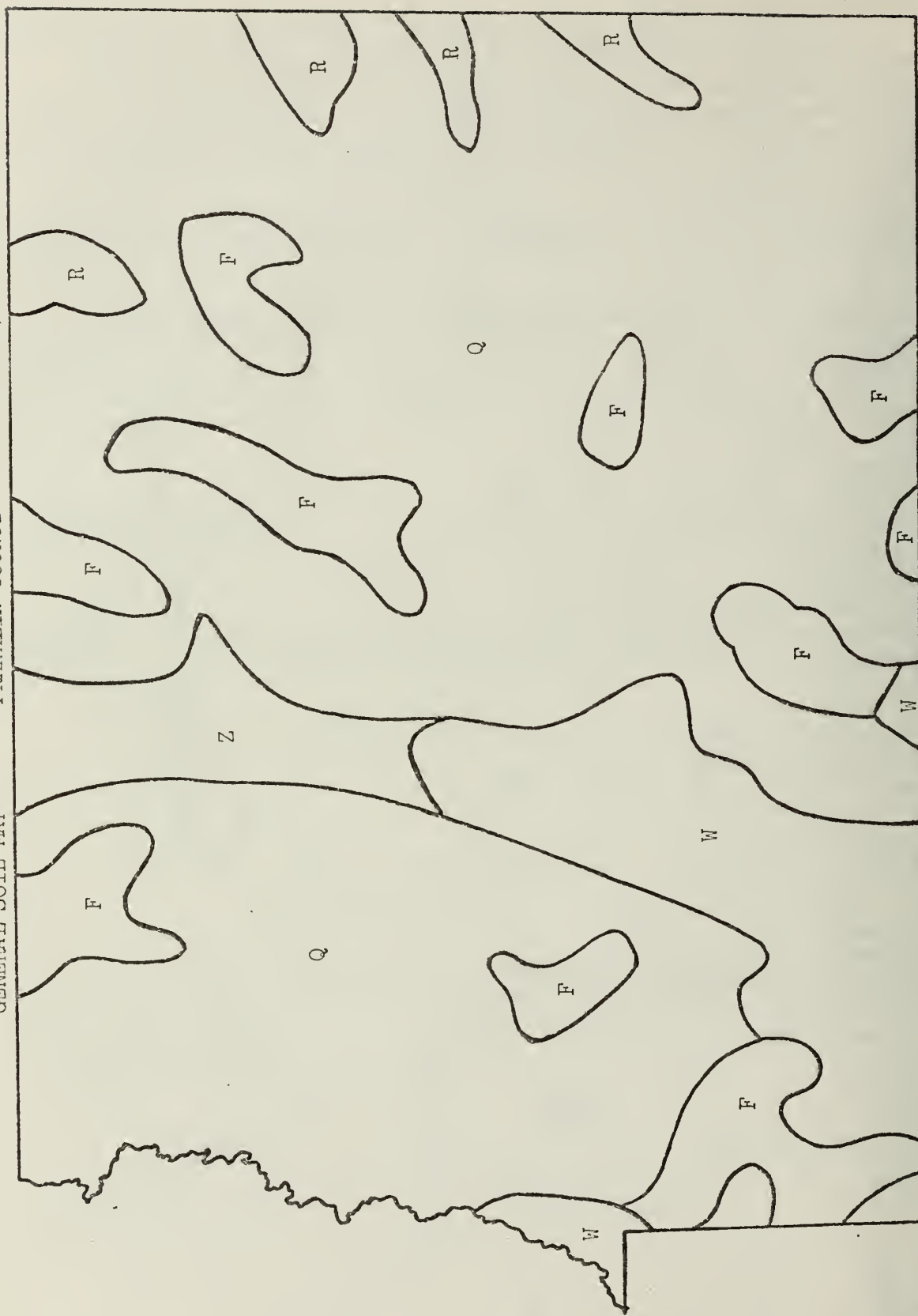




FIGURE 4

FRANKLIN COUNTY

GENERAL SOIL MAP



See Legend on Next Page

Adapted from, Soils of Illinois,  
Bulletin 725, University of Illinois,  
College of Agriculture, Urbana, Illinois, 1967



## FRANKLIN COUNTY

### SOIL MAP LEGEND

- F. Hoyleton-Cisne-Huey Soil Association: Developed primarily from loess. Occur on nearly level to moderately sloping uplands. Moderately well-drained to poorly drained. Erosion control is needed on the more sloping areas and drainage is needed on the nearly level areas.
- Q. Ava-Bluford-Wynoose Soil Association: Developed primarily from loess. Occur on nearly level to steep uplands. Moderately well-drained to poorly drained. Fertility, erosion control, and drainage are the major problems.
- R. Grantsburg-Robbs-Wellston Soil Association: Developed primarily from loess. Occur on gently sloping to very steep topography. Fertility and erosion control are the main problems.
- W. Littleton-Proctor-Plano-Camden-Hurst-Ginat Soil Association: Developed primarily from medium and fine textured outwash. Occur over a wide range of slope—from nearly level to very steep—on upland and stream terrace areas. Problems encountered are drainage, erosion, and fertility, depending upon the soil type.
- Z. Lawson-Beaucoup-Darwin-Haymond-Belknap Soil Association: Bottomland soils developed primarily from alluvium and are generally nearly level to gently sloping; vary in color from light to dark, in texture from sandy to clayey, and in drainage from poorly drained to well-drained; fertility, drainage, overflow, and weed control are the principal problems.



## ALPHABETICAL LISTING AND DESCRIPTION OF MAJOR LAKES AND STREAMS

### LAKES

ONLY LAKES CONTAINING 6.0 OR MORE SURFACE ACRES ARE LISTED INDIVIDUALLY. INFORMATION PRESENTED INCLUDES LOCATION, CLASSIFICATION OF OWNERSHIP, SURFACE ACRES, APPROXIMATE MAXIMUM DEPTH, SHORELINE LENGTH, TYPE OF LAKE, YEAR BUILT, AND COMMENTS ON THE FISH POPULATION. NUMBERS IN PARENTHESES REFER TO MAP LOCATIONS (FIG. 5). THE DISTRIBUTION OF PONDS BY TOWNSHIPS (PERCENT OF TOTAL NUMBER) IS PRESENTED IN FIGURE 6.

B & A FISHING CLUB (1); T7S, R1E, SECTION 3; CLUB; SURFACE ACRES = 6.8; MAXIMUM DEPTH = 16.0 FEET; SHORELINE LENGTH = 0.7 MILE; CONSTRUCTED = 1961.

LOCATED 4 MILES SOUTHWEST OF CHRISTOPHER, THIS CLUB LAKE HAS HAD A GREAT DEAL OF MANAGEMENT ATTENTION IN THE LAST 6 YEARS. MOST OF THE MANAGEMENT HAS BEEN IN THE WAY OF AQUATIC WEED CONTROL. COONTAIL AND WATER PRIMROSE HAVE BEEN THE TWO MOST TROUBLESOME PLANT SPECIES, AND THEY REQUIRE ATTENTION ALMOST ANNUALLY. EXCESSIVE NUMBERS OF SMALL STUNTED BLUEGILLS HAVE LIKEWISE BEEN A NUISANCE. A DRAWDOWN IN THE FALL OF 1970 WAS AIMED AT REDUCING SOME OF THEIR NUMBERS. ATTEMPTS AT ERADICATING THESE SMALL "BAIT STEALERS" WILL HAVE TO BE MADE ON A REGULAR BASIS IN THE FUTURE.

THE LAKE IS KNOWN TO CONTAIN THE FOLLOWING SPECIES OF FISH: LARGEMOUTH BASS, BLUEGILL, CHANNEL CATFISH, BULLHEADS, CRAPPIE, GREEN SUNFISH, AND WARMOUTH.

BEAVER FISHING CLUB (2); T7S, R2E, SECTION 8; CLUB; SURFACE ACRES = 32.2; MAXIMUM DEPTH = 10.0 FEET; SHORELINE LENGTH = 1.7 MILES; CONSTRUCTED = 1951.

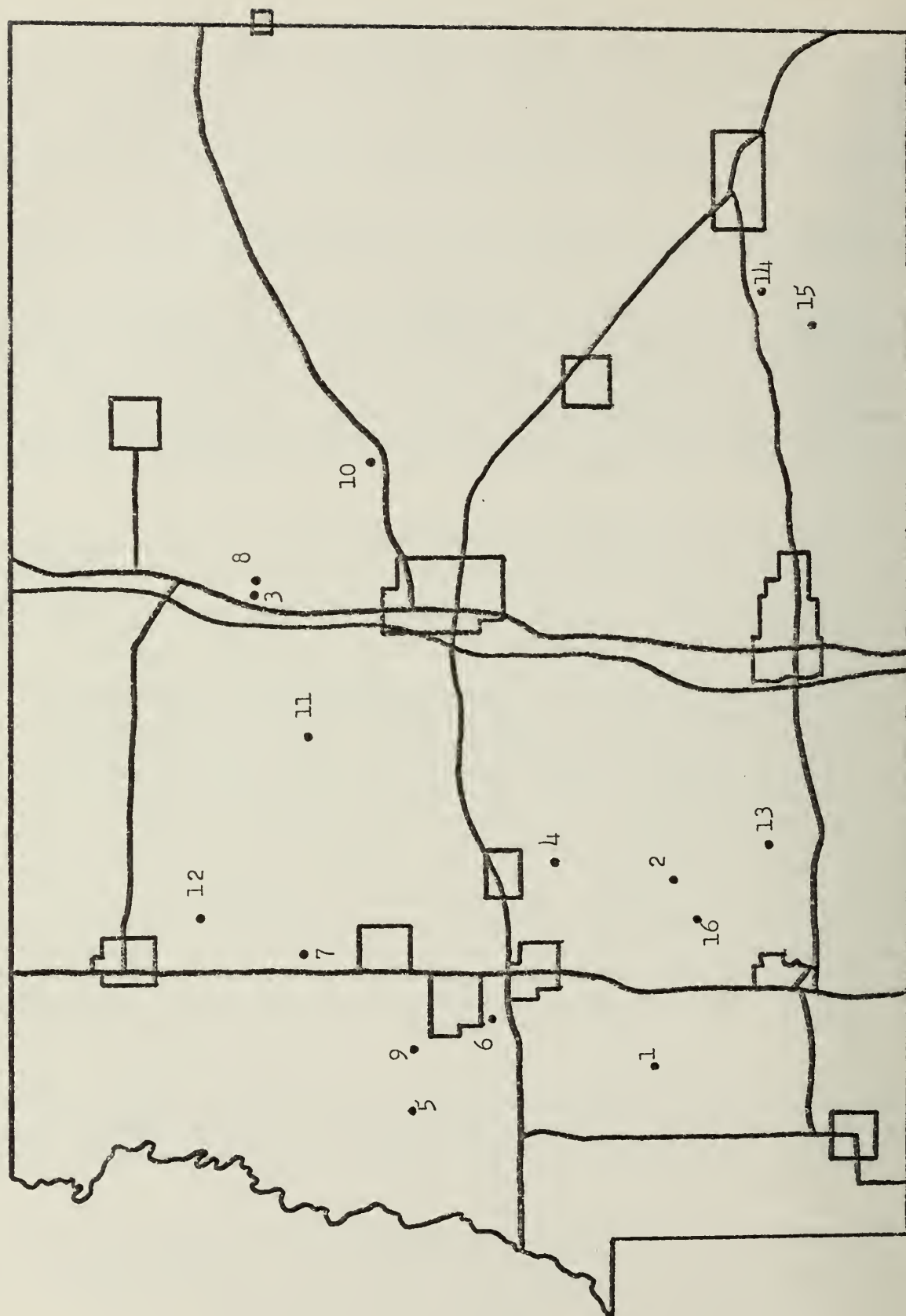
THE BEAVER FISHING CLUB LAKE, LOCATED APPROXIMATELY 3 MILES SOUTHEAST OF CHRISTOPHER, IS KNOWN TO CONTAIN THE FOLLOWING SPECIES OF FISH: BLUEGILL, LARGEMOUTH BASS, BLACK AND WHITE CRAPPIE, WARMOUTH, YELLOW BASS, ORANGESPOTTED SUNFISH, REDEAR SUNFISH, LONGEAR SUNFISH, BIGMOUTH BUFFALO, SMALLMOUTH BUFFALO, GIZZARD SHAD, BLACK-STRIPED TOPMINNOW, BOWFIN, AND GAR. LYING WITHIN THE FLOODPLAIN OF THE BIG MUDDY RIVER, THIS LAKE FALLS INTO A CATEGORY OF LAKES WHICH ARE REFERRED TO AS BEING BOTTOM OR LOWLAND TYPE LAKES. NEARLY EVERY SPRING WHEN THE BIG MUDDY RIVER SWELLS BEYOND ITS NORMAL WATER CARRYING CAPACITY, IT PUSHES OUT INTO THE ADJACENT LOW LYING AREAS AND REPLENISHES THEM WITH THE WATER WHICH THEY THEMSELVES WILL NEED IN ORDER TO ENDURE THE DRY SEASON AHEAD. DURING FLOODING THESE LOW LYING AREAS EXPERIENCE A CONSTANT INTERCHANGE OF WATER, FISH, AND FISH FOOD ORGANISMS. MANAGEMENT, OR ARTIFICIAL MANIPULATION OF A LAKE'S FISH POPULATION IN SUCH A WAY SO AS TO BE PRODUCTIVE OF SPECIFIC TYPES OF FISH, BECOMES A FORMIDABLE TASK WHERE THIS FREE INTERCHANGE OCCURS ANNUALLY. THIS IS THE SITUATION THAT EXISTS AT THE BEAVER FISHING CLUB LAKE.

RECORDS SHOW THAT FOR THE PAST 10 YEARS THIS LAKE HAS PROBABLY HAD AS MUCH OR MORE MANAGEMENT ATTENTION THAN ANY OTHER LAKE IN THE COUNTY. THIS WORK HAS INCLUDED POPULATION SAMPLES WITH THE ELECTRO-SAMPLER, AQUATIC VEGETATION CONTROL, DEPTH SOUNDINGS, SUPPLEMENTAL STOCKINGS OF FISH, AND PARTIAL OR SELECTIVE REHABILITATIONS.

THE LAKE DOES NOT FUNCTION AS A DRINKING WATER SUPPLY, AND SO IT LENDS ITSELF MORE EASILY TO SOUND AND PROVEN MANAGEMENT PRACTICES. THE ONLY DRAWBACK IN THIS REGARD IS THAT THE LAKE IS SITUATED IN A FLOODPLAIN. CERTAIN MANAGEMENT OPERATIONS ARE AS A CONSEQUENCE EXPECTED TO BE RELATIVELY SHORT-LIVED.

FIGURE 5

LOCATIONS OF LAKES



For names of towns refer to Figure 2  
Numbers representing lakes correspond to those in text

DISTRIBUTION OF PONDS BY TOWNSHIPS

T5S	R1E	R2E	R3E	R4E	T5S
	8.4%	9.8%	10.7%	10.0%	
T6S	10.7%	7.4%	7.5%	9.5%	T6S
T7S	5.1%	5.8%	7.2%	7.7%	T7S
	R1E	R2E	R3E	R4E	



BENTON LAKE (3); T6S, R3E, SECTION 30; PUBLIC; SURFACE ACRES = 67.6; MAXIMUM DEPTH 30.0 FEET; SHORELINE LENGTH = 3.5 MILES; CONSTRUCTED = 1935.

THIS LAKE IS AN ARTIFICIAL IMPOUNDMENT LOCATED ABOUT 3 MILES NORTH OF THE CITY OF BENTON. IT LIES NEXT TO AN IMMEDIATELY BELOW LAKE HAMILTON.

PRIOR TO THE LATE SUMMER OF 1972 BENTON LAKE WAS KNOWN TO CONTAIN THE FOLLOWING SPECIES OF FISH: GREEN SUNFISH, GRASS PICKEREL, GOLDEN SHINER, YELLOW BASS, CHANNEL CATFISH, FRESHWATER DRUM, CARP, YELLOW BULLHEAD, BLACK CRAPPIE, LARGEMOUTH BASS, BLUEGILL, LONGEAR SUNFISH, AND WARMOUTH.

THE ILLINOIS FISH DIVISION SUPERVISED A COMPLETE REHABILITATION OF THE LAKE'S FISH POPULATION IN LATE SEPTEMBER OF 1972. CONSIDERED A MAJOR OPERATION AS FAR AS FISHERIES MANAGEMENT IS CONCERNED, SUCH A PROJECT BECAME FEASIBLE AS A RESULT OF THE CITY OF BENTON'S JOINING THE REND LAKE COOPERATIVE DOMESTIC WATER SUPPLY SYSTEM. BEFORE ERADICATING THE FISH POPULATION, ABOUT 500 LARGEMOUTH BASS RANGING IN SIZE FROM 3 INCHES ON UP TO 21.0 INCHES WERE SALVAGED BY MEANS OF ELECTRO-FISHING GEAR AND WERE TRANSFERRED TO HAMILTON LAKE.

ROTENONE, A BIODEGRADABLE FISH TOXICANT, WAS APPLIED BY BOAT AND MIXED THOROUGHLY THROUGHOUT THE ENTIRE LAKE. IN OCTOBER, AFTER THE ROTENONE HAD DETOXIFIED, 6,700 LARGEMOUTH BASS AND 67,000 REDEAR SUNFISH FINGERLINGS WERE STOCKED.

LAKE BENTON BECOMES REMARKABLY CLEAR DURING THE SUMMER MONTHS. UNDERWATER VEGETATION HAS BEEN AND MAY CONTINUE TO BE SOMEWHAT OF A PROBLEM. UNTIL A GOOD, EFFECTIVE BIOLOGICAL METHOD OF CONTROL IS DISCOVERED, APPROPRIATE CHEMICAL SOLUTIONS WILL PROBABLY HAVE TO BE USED AS THE NEED ARISES. IN ANY EVENT, FISHING AT THE LAKE SHOULD BE NOTICEABLY IMPROVED IN THE COMING YEARS.

PRACTICALLY THE ENTIRE LENGTH OF SHORELINE AROUND THE LAKE HAS BEEN DEVELOPED. COTTAGES AND CABINS STAND ON NEARLY EACH AND EVERY LOT THAT CONSTITUTES A PART OF THE LAKEFRONT, AND ALL BUT A VERY FEW OF THESE DWELLINGS HAVE A BOATDOCK. BECAUSE OF THIS, PUBLIC ACCESS IS LIMITED TO SPECIFIC AREAS. A PUBLIC BOAT RAMP IS LOCATED AT THE LAKE'S SOUTHERN END ALONG WITH A PUBLIC SWIMMING BEACH AROUND WHICH HAS BEEN INSTALLED A PROTECTIVE BARRIER OF WOODEN PILINGS AND CROSS BEAMS.

BUCKNER CITY RESERVOIR (4); T6S, R2E, SECTION 29; PUBLIC; SURFACE ACRES = 16.5; MAXIMUM DEPTH = 12.0 FEET; SHORELINE LENGTH = 0.75 MILE; CONSTRUCTED = 1964.

A LOCAL COAL MINING INDUSTRY ORIGINALLY DESIGNED AND USED THIS AREA FOR WATER STORAGE AS A PART OF THEIR OPERATIONS. IN 1964 IT WAS REDESIGNED SO THAT IT WOULD HOLD A LARGER VOLUME OF WATER. MINING FOR COAL STILL CONTINUES ON A VERY LARGE SCALE BUT IN A DIFFERENT LOCALE NOW. FOR THE PAST SEVERAL YEARS THE CITY OF BUCKNER HAS USED THE LAKE AS A SOURCE OF DRINKING WATER. WATER HAS BEEN PUMPED IN FROM THE BIG MUDDY RIVER ON OCCASION TO KEEP THE RESERVOIR ADEQUATELY FILLED. THIS HAS BEEN NECESSITATED ONLY DURING PERIODS OF EXTREME DROUGHT. WITH REND LAKE REACHING ITS FINAL STAGES OF DEVELOPMENT, AND WITH BUCKNER BEING SCHEDULED TO DRAW OFF OF IT AS SOURCE OF DOMESTIC WATER, BUCKNER RESERVOIR WILL BECOME POTENTIALLY MORE MANAGEABLE.

THE RESERVOIR IS LOCATED 1.5 MILES SOUTHEAST OF THE CITY OF BUCKNER, AND IT IS KNOWN TO HAVE THE FOLLOWING SPECIES OF FISH: LARGEMOUTH BASS, BLUEGILL, REDEAR SUNFISH, AND WARMOUTH.

CHRISTOPHER NEW RESERVOIR (5); T6S, R1E, SECTION 16; PUBLIC; SURFACE ACRES = 37.8; MAXIMUM DEPTH = 23.0 FEET; SHORELINE LENGTH = 2.2 MILES; CONSTRUCTED = 1923.

THIS IS A SMALL ARTIFICIAL IMPOUNDMENT LOCATED 1.5 MILES NORTH AND 2 MILES WEST

OF THE CITY OF CHRISTOPHER. ITS PRIMARY USAGE IS AS A CITY WATER SUPPLY. ALTHOUGH A NUMBER OF FISH SAMPLES HAVE BEEN MADE, LITTLE IN THE WAY OF ACTUAL MANAGEMENT HAS EVER BEEN UNDERTAKEN BECAUSE OF THE NATURE OF THE IMPOUNDMENT. THE SUCCESS WITH WHICH FISH HAVE BEEN COLLECTED BY MEANS OF THE ELECTRO-FISHING HAS ALWAYS BEEN RATHER POOR BECAUSE OF THE CLEARNESS OF THE WATER. WEEDS HAVE BEEN A PROBLEM SINCE SUNLIGHT IS ABLE TO PENETRATE TO THE LAKE'S BOTTOM OVER WIDE AREAS. WITH THE GRADUAL DEVELOPMENT OF REND LAKE, THE MANAGEMENT POTENTIAL HERE SHOULD CHANGE NOTICEABLY. BLUEGILL, BLACK CRAPPIE, LARGEMOUTH BASS, BULLHEADS, YELLOW BASS, CHANNEL CATFISH, WARMOUTH, GRASS PICKEREL, GREEN SUNFISH, CREEK CHUBSUCKERS, GOLDEN SHINERS, AND TOPMINNOWS ARE AMONG THE SPECIES OF FISH WHICH ARE KNOWN TO OCCUR IN THIS LAKE.

CHRISTOPHER OLD RESERVOIR (6); T6S, R1E, SECTION 23; PUBLIC; SURFACE ACRES = 19.8; MAXIMUM DEPTH = 17.0 FEET; SHORELINE LENGTH = 1.6 MILES; CONSTRUCTED = 1900.

THE CHRISTOPHER OLD RESERVOIR IS LOCATED ABOUT 1 MILE NORTHWEST OF CHRISTOPHER. FISH POPULATION SAMPLES MADE BY THE ILLINOIS DIVISION OF FISHERIES HAVE COLLECTED THE FOLLOWING SPECIES: BLUEGILL, BLACK CRAPPIE, LARGEMOUTH BASS, WARMOUTH, YELLOW BULLHEADS, CHANNEL CATFISH, AND GIZZARD SHAD. THE CLARITY OF THE LAKE'S WATER MAKES COLLECTING A SAMPLE OF FISH BY MEANS OF ELECTRIC SHOCKING EQUIPMENT PARTICULARLY DIFFICULT, AND IT ALSO CONTRIBUTES TO THE LARGE EXPANSE OF WEEDS THAT EXTEND ACROSS MUCH OF THE LAKE'S BOTTOM. SUNLIGHT PENETRATION, AS A RESULT OF THE EXTRAORDINARILY CLEAR WATER, IMPROVES THE HABITAT FOR UNDERWATER VEGETATION.

WHILE SERVING PRIMARILY AS A WATER SUPPLY FOR HUMAN CONSUMPTION THE USE OF FISHERIES MANAGEMENT TECHNIQUES OR WEED CONTROL METHODS AT THE LAKE WERE LIMITED. NOW THAT THE CITY OF CHRISTOPHER IS OBTAINING WATER FROM REND LAKE, THE POTENTIAL FOR DEVELOPING A MORE DESIRABLE SPORT FISHING LAKE HAS IMPROVED.

EAGLES CLUB LAKE (7); T5S, R1E, SECTION 36; CLUB; SURFACE ACRES = 54.0; MAXIMUM DEPTH = 13.5 FEET; SHORELINE LENGTH = 4.0 MILES; CONSTRUCTED = 1922.

THIS FAIRLY LARGE CLUB LAKE IS LOCATED APPROXIMATELY 1.5 MILES NORTH OF VALIER AND IS OPEN TO MEMBERS ONLY. LARGEMOUTH BASS, BLUEGILL, BLACK CRAPPIE, WARMOUTH, GOLDEN SHINER, CHUBSUCKER, GRASS PICKEREL, AND REDEAR SUNFISH ARE THE PRINCIPAL SPECIES PRESENT.

IN TERMS OF AVERAGE SIZE, THE LAKE HAS CONSISTENTLY HAD ONE OF THE BETTER BLUEGILL POPULATIONS IN THE SOUTHERN PART OF THE STATE. THE CRAPPIE GENERALLY ATTAIN A MODERATE SIZE. GOOD KEEPER-SIZE BASS ARE PRESENT IN SUFFICIENT NUMBERS TO BE OF INTEREST. BREEDER REDEAR SUNFISH WERE INTRODUCED IN 1969, BUT OFFSPRING FROM THESE FISH WERE NOT FOUND UNTIL THE FALL OF 1971.

SINCE ABOUT 1968 THE MEMBERSHIP IN THIS CLUB HAS TAKEN A VERY ACTIVE INTEREST IN IMPROVING SPORT FISHING WITHIN ITS LAKE. POPULATION SAMPLES HAVE BEEN TAKEN ANNUALLY IN ORDER TO KEEP UP WITH THE STATUS OF THE FISHERY. EFFORTS TO CONTAIN THE SPREAD OF AQUATIC VEGETATION BY MEANS OF SUITABLE CHEMICAL SOLUTIONS HAVE BEEN MADE. THE POTENTIAL WHICH THIS LAKE HOLDS FOR PROVIDING GOOD SPORT FISHING IN THE FUTURE APPEARS TO BE BRIGHT.

HAMILTON LAKE (8); T5S, R3E, SECTION 30; PUBLIC; SURFACE ACRES = 34.2; MAXIMUM DEPTH = 18.0 FEET; SHORELINE LENGTH = 2.0 MILES; CONSTRUCTED = 1912.

THIS LAKE, LOCATED ADJACENT TO AND IMMEDIATELY ABOVE BENTON LAKE, IS APPROXIMATELY 3 MILES NORTH OF THE CITY OF BENTON. THE SPILLWAY AREA OF HAMILTON LAKE REPRESENTS THEN THE UPPER END OF BENTON LAKE. THE LAKE'S FISH POPULATION IS MADE UP OF LARGEMOUTH BASS, BLUEGILL, WARMOUTH, GRASS PICKEREL, BLACK AND WHITE CRAPPIE, AND GREEN SUNFISH.



MANAGEMENT ASSISTANCE HAS BEEN REQUESTED AND OFFERED ON NUMEROUS OCCASIONS BUT HAS BEEN PRACTICED ON A LIMITED BASIS. POPULATION ANALYSIS AND LAKE SURVEYS REVEAL PAST PROBLEMS WITH NUMEROUS SMALL AND STUNTED SUNFISH. WEEDS HAVE POSED A PROBLEM AS WELL. CHEMICAL TREATMENTS COULD THEORETICALLY BRING SOME RELIEF FROM AND IMPROVEMENT IN EITHER SITUATION, BUT THIS AVENUE HAS ALWAYS BEEN BLOCKED BECAUSE OF THE LAKE'S PRIMARY FUNCTION AS A CITY WATER SUPPLY.

WITH THE DEVELOPMENT OF REND LAKE AS A SOURCE OF WATER FOR DOMESTIC PURPOSES, THE CITY OF BENTON CAN AND UNDOUBTEDLY WILL TURN ITS ATTENTION TO DEVELOPING LAKE HAMILTON AS A RECREATIONAL AREA. SHOULD THE NEED ARISE, REHABILITATION OF THE LAKE'S FISH POPULATION AND CONTROL OF WEEDS BY MEANS OF HERBICIDES WILL BE MORE FEASIBLE THAN IN THE PAST. THE LAKE HAS A FAIRLY GOOD BASS POPULATION AT PRESENT WITH GOOD CATCHABLE SIZE PANFISH SUCH AS BLUEGILL AND CRAPPIE BEING AVAILABLE AS WELL.

IZAACK WALTON CLUB LAKE (9); T6S, R1E, SECTION 15; CLUB; SURFACE ACRES = 23.8; MAXIMUM DEPTH = 16.5 FEET; SHORELINE LENGTH = 1.3 MILES; CONSTRUCTED = 1902.

THIS MEDIUM-SIZED CLUB LAKE IS FOUND APPROXIMATELY 3.5 MILES NORTHWEST OF CHRISTOPHER. IT IS A RATHER OLD LAKE AND IN TURN HAS REMNANTS OF AN OLD FISH POPULATION. THE FISH POPULATION IS KNOWN TO CONSIST OF LARGEMOUTH BASS, BLUEGILL, WARMOUTH, GREEN SUNFISH, YELLOW BASS, GRASS PICKEREL, GOLDEN SHINERS, WHITE CRAPPIE, CARP, CHANNEL CATFISH, BULLHEADS, AND TOPMINNOWS. ITS MANAGEMENT HISTORY IS NOTEWORTHY BECAUSE IT IS SO LONG; DATING AS FAR BACK AS 1951. THE MAJOR PROBLEM IN THIS LAKE HAS BEEN THE EXCESSIVE NUMBERS OF SMALL, THIN BLUEGILL AND EVEN BASS. APPARENTLY THE WATERSHED IN WHICH THE LAKE LIES IS INFERTILE, AND AS A CONSEQUENCE, THE ORGANISMS THAT COMPRISE THE LOWER PART OF THE LAKE'S FOOD CHAIN ARE NOT SUFFICIENTLY ABUNDANT TO ADEQUATELY SUPPORT ALL OF THE FISH THAT ARE PRESENT. FERTILIZATION PROGRAMS, ALSO WITH DRAWDOWNS, HAVE BEEN ATTEMPTED IN THE PAST WITH ONLY MARGINAL SUCCESS. SOME COMMERCIAL FISHING WAS CARRIED OUT AT ONE TIME IN AN ATTEMPT TO IMPROVE THE SPECIES BALANCE. COMPLETE REHABILITATION WOULD BE THE MOST SUCCESSFUL WAY TO RESTORE GOOD ANGLING TO THIS LAKE.

MOSES LAKE (10); T6S, R3E, SECTION 10; CLUB; SURFACE ACRES = 169.6; MAXIMUM DEPTH = 21.0 FEET; SHORELINE LENGTH = 7.0 MILES; CONSTRUCTED = 1918.

THIS FAIRLY LARGE CLUB LAKE IS TO BE FOUND ABOUT 2 MILES NORTHEAST OF THE CITY OF BENTON. THE CLUB MEMBERSHIP HAS REQUESTED AND HAS RECEIVED MANAGEMENT ASSISTANCE ON A NUMBER OF SEPARATE OCCASIONS. FISH MANAGEMENT SURVEYS HAVE SHOWN THE NEED FOR THINNING OF SMALL SUNFISH AND FOR CONTROLLING UNDERWATER WEED GROWTHS. ALTHOUGH SOME WATER MAY BE USED FROM THE LAKE FOR DOMESTIC PURPOSES FROM TIME-TO-TIME, IT IS USED PRIMARILY FOR RECREATIONAL PURPOSES. THUS, IT LENDS ITSELF MORE READILY TO THE APPLICATION OF CERTAIN CHEMICAL SOLUTIONS WHICH CAN HELP TO MINIMIZE THE PROBLEMS ARISING EITHER FROM HAVING TOO MANY WEEDS OR FROM HAVING AN OVERABUNDANCE OF SMALL, UNDERNOURISHED FISH. SAMPLING IN THE PAST WITH ELECTRO-FISHING GEAR HAS REVEALED THE PRESENCE OF THE FOLLOWING SPECIES OF FISH: LARGEMOUTH BASS, BLUEGILL, BLACK AND WHITE CRAPPIE, GRASS PICKEREL, WARMOUTH, GOLDEN SHINER, COMMON SHINER, CARP, BUFFALO GIZZARD SHAD, BULLHEADS, CHANNEL CATFISH AND LONGEAR SUNFISH.

REND LAKE (11); T5&6S, R2E, SECTION 2, 3, 34 & 35; PUBLIC; SURFACE ACRES = 18,900; MAXIMUM DEPTH = 35.0; SHORELINE LENGTH = 162.0 MILES; CONSTRUCTED = 1970.

REND LAKE IS A VAST 18,900\* ACRE RESERVOIR. ITS LOWER HALF IS POSITIONED IN THE NORTH-CENTRAL PART OF THE COUNTY; THE SPILLWAY STRUCTURE AND DAM BEING LOCATED ABOUT 3 MILES NORTHWEST OF BENTON. THE LAKE'S LONG AXIS RUNS NORTH BY SOUTH, AND ITS UPPER HALF EXTENDS NORTHWARD INTO JEFFERSON COUNTY. HERE THE MAIN BASIN FORKS INTO TWO PROMINENT ARMS; THE WESTERN ARM REPRESENTING WHAT ONCE WAS THE MEANDERINGS OF THE BIG MUDDY RIVER AND ITS NUMEROUS SMALLER TRIBUTARIES, AND THE EASTERN ARM INUNDATING

\*8,878.0 ACRES IN FRANKLIN COUNTY; 10,022.0 ACRES IN JEFFERSON COUNTY.

AN AREA THROUGH WHICH CASEY FORK AND ITS SEVERAL FEEDER STREAMS HAD FORMERLY WOUND. AT NORMAL POOL, OR IN A NONFLOODED CONDITION, THE LAKE IS APPROXIMATELY 17 MILES LONG AND HAS A MAXIMUM WIDTH OF ABOUT 3 MILES WITHIN THE MAIN BASIN. BECAUSE OF THE BASIN'S LARGE SIZE AND OPENNESS, IT UNDOUBTEDLY WILL BE RATHER WINDSWEPT AND ROUGH MUCH OF THE TIME. THIS SHOULD MAKE THE UPPER PORTIONS OF THE RESERVOIR WHERE THERE WILL BE A FAIRLY LARGE NUMBER OF SMALL BAYS AND COVES FULL OF FLOODED TIMBER AND BRUSH MORE ATTRACTIVE; PARTICULARLY TO THOSE WHO ARE PRIMARILY INTERESTED IN FISHING. CONDITIONS WITHIN THE LOWER PART OF THE LAKE WHERE IT IS MORE OPEN AND LESS PROTECTED FROM WINDS SHOULD BE MUCH TO THE LIKING OF SAILBOATERS.

THE DESIGN AND DEVELOPMENT OF THIS LAKE IS THE RESULT OF COOPERATIVE EFFORTS ON THE PART OF THE REND LAKE CONSERVANCY DISTRICT, THE U. S. ARMY CORPS OF ENGINEERS, AND THE STATE OF ILLINOIS. THE PRIMARY PURPOSE OF THE 53 MILLION DOLLAR PROJECT IS TO OFFER FLOOD AND DOWNSTREAM WATER QUALITY CONTROL TO THE AGRICULTURAL, MUNICIPAL, AND INDUSTRIAL INTERESTS LOCATED WITHIN THE LOWER PORTION OF THE BIG MUDDY RIVER'S WATERSHED BASIN. THE RESERVOIR WILL ALSO FUNCTION AS A SOURCE OF WATER FOR DOMESTIC USE TO 43 COMMUNITIES IN 6 ADJOINING COUNTIES (JEFFERSON, HAMILTON, SALINE, FRANKLIN, WILLIAMSON AND PERRY). RECREATIONAL AND LAND DEVELOPMENT OPPORTUNITIES WILL ALSO BE CREATED AS A RESULT OF THE LARGE IMPOUNDMENT.

THE RESERVOIR, AS WELL AS MUCH OF THE ADJACENT LAND, WILL BE MANAGED AND ADMINISTERED BY CORPS AND STATE CONSERVATION PERSONNEL WHO WILL STRIVE TO SEE THAT FISHERMEN, HUNTERS, CAMPERS, BOATERS, BATHERS, PICNICKERS AND SIGHTSEERS ALL HAVE AN EXCELLENT OPPORTUNITY TO ENJOY THEIR OUTDOOR HOBBIES. FISH AND WILDLIFE MANAGEMENT WILL BE ESPECIALLY INTENSE IN THE EXTREME NORTHERN PORTION OF THE RESERVOIR. THIS AREA CONTAINS TWO SUB-IMPOUNDMENTS, BOTH OF WHICH WERE FORMED AS A RESULT OF THE PLACEMENT OF SMALL SECONDARY DAMS ACROSS THE LAKE'S PRINCIPAL TRIBUTARIES, CASEY FORK AND THE BIG MUDDY RIVER.

CONSTRUCTION ON THE MAIN DAM STARTED IN MAY OF 1968. THIS WAS FINISHED BY OCTOBER OF 1970, AND AT THAT TIME THE GATES WERE CLOSED OFFICIALLY AND WATER BEGAN IMPOUNDING.

THE COMPLETED DAM IS PROBABLY THE MOST NOTABLE FEATURE OF THE ENTIRE PROJECT. THIS IS USUALLY TRUE IN CASES WHERE LARGE MAN-MADE RESERVOIRS SUCH AS CARLYLE, SHELBYVILLE, AND REND ARE FORMED. THE COMPLETED DAM AT REND LAKE IS SLIGHTLY MORE THAN 2 MILES LONG. ANOTHER PROMINENT ASPECT OF THE LAKE DEVELOPMENT HAS BEEN THE ELEVATION OF ILLINOIS ROUTE 183 ACROSS THE LAKE NEAR ITS MID-SECTION. THIS INVOLVES A 4 MILE STRETCH OF HIGHWAY AND INCLUDES TWO GAPS OF BRIDGES, WHICH CONNECT THE UPPER AND LOWER HALVES OF THE LAKE. HEIGHT OF THE BRIDGES IS SUCH THAT THE PASSAGE OF SAIL-BOAT TRAFFIC IS ACCOMMODATED. RUNNING EAST AND WEST, ROUTE 183 IS AN IMPORTANT LINK FOR TRUCK AND AUTOMOBILE TRAFFIC BETWEEN ILLINOIS ROUTE 148 ON THE WEST SIDE OF THE LAKE AND INTERSTATE ROUTE 57 ON THE EAST SIDE. FOR PEOPLE USING THE LAKE AND ITS RECREATIONAL FACILITIES, IT IS IMPORTANT IN THAT IT SERVES AS A RELATIVELY QUICK WAY OF GETTING FROM ONE SIDE OF THE LAKE TO THE OTHER.

FISHERIES MANAGEMENT FIELD OPERATIONS ON REND LAKE WERE INITIATED DURING THE FALL OF 1968. SEVERAL BORROW PITS IN THE NORTH AND EAST SECTORS OF THE PROPOSED LAKE BASIN ALONG THE NEWLY CONSTRUCTED INTERSTATE ROUTE 57 WERE STOCKED WITH FINGERLING LARGEMOUTH BASS; THE PURPOSE BEING THAT BY THE TIME THE LAKE STARTED IMPOUNDING AND WATER BEGAN BACKING UP INTO THESE BORROW PITS, BREEDER-SIZE FISH WOULD BE PROVIDED TO THE LAKE PROPER. THROUGHOUT THE SPRING, SUMMER, AND FALL OF 1971, AS THE LAKE GRADUALLY BEGAN TO FILL AND INCREASE IN SIZE, THOUSANDS OF ADDITIONAL LARGEMOUTH BASS AND BLUEGILL FINGERLINGS WERE ADDED TO THE MAIN BASIN. MORE THAN  $\frac{1}{2}$  MILLION NORTHERN PIKE FRY WERE ALSO STOCKED DURING THE SPRING OF 1971. MANY OF THE PIKE SURVIVED AND ARE GROWING RAPIDLY; AN ABSENCE OF DESIRABLE SPAWNING HABITAT, HOWEVER, WILL INHIBIT NORTHERN PIKE REPRODUCTION.



FOLLOWING SUMMER AND FALL SAMPLES OF THE FISH POPULATION IN 1971 AND 1972, THE STATE RESERVOIR BIOLOGIST WAS ABLE TO PREDICT GOOD BASS FISHING IN THE SUMMER OF 1973. THE LAKE ALSO OFFERS SOME ANGLING FOR WHITE BASS AS WELL AS NORTHERN PIKE. THE LATTER TWO SPECIES ARE NOT AS ABUNDANT AS THE LARGEMOUTH, BUT THOSE TAKEN ARE OF GOOD SIZE. CRAPPIE, BOTH BLACK AND WHITE, WILL APPEAR FREQUENTLY IN THE ANGLER'S CREEL AND HAVE ATTAINED DESIRABLE SIZE. FLOODED BRUSH PILES AND AREAS WHERE SAPLINGS AND TREES OF VARIOUS SIZES HAVE BEEN LEFT STANDING IN WATER, AS WELL AS THE ROCK RIP-RAPPING ALONG THE INSIDE FACE OF THE DAM, SHOULD SERVE AS CONCENTRATION POINTS FOR CRAPPIE AND CRAPPIE FISHERMEN. AN EXCELLENT BLUEGILL FISHERY HAS DEVELOPED IN THE LAKE WITH NICE CATCHES BEING TAKEN IN SHALLOW AREAS AROUND BRUSHY COVER. CARP AND BULLHEADS ALSO PROVIDE GOOD FISHING OPPORTUNITIES IN REND LAKE.

IN ADDITION TO THE SPECIES MENTIONED ABOVE, THE LAKE HAS A FISH POPULATION COMPRISED OF THE FOLLOWING: GREEN SUNFISH, BIGMOUTH BUFFALO, BOWFIN, GRASS PICKEREL, ORANGESPOTTED SUNFISH, GIZZARD SHAD, GOLDEN SHINER, BLACKSTRIPE TOPMINNOW, MOSQUITOFISH, FLIER, CARPSUCKER SPECIES, BLACK REDHORSE, WARMOUTH, LONGEAR SUNFISH, CHANNEL CATFISH, PIRATE PERCH, SILVERY MINNOW, CREEK CHUBSUCKER, SHORTNOSE GAR AND LONGNOSE GAR. TWO SPECIES OF BULLHEADS, THE BLACK AND YELLOW, ARE PRESENT.

ADDITIONAL INFORMATION PERTAINING TO THE USE OF THE LAKE AND ITS FACILITIES MAY BE OBTAINED BY WRITING TO THE U. S. ARMY CORPS OF ENGINEERS, Box 400, BENTON, ILLINOIS, 62812.

SESSER LAKE (12); T5S, R2E, SECTION 19; PUBLIC; SURFACE ACRES = 42.5; MAXIMUM DEPTH = 15.0 FEET; SHORELINE LENGTH = 1.8 MILES; CONSTRUCTED = 1905.

LOCATED 1 MILE SOUTHEAST OF SESSER, THIS IS A WATER STORAGE AREA OF THE CITY. THE SPORT FISHING POTENTIAL OF THE LAKE HAS BEEN LIMITED BECAUSE OF ITS FUNCTION AS A DRINKING WATER SUPPLY FOR THE TOWN'S RESIDENTS. PAST SAMPLINGS OF THE LAKE HAVE REVEALED THE FOLLOWING SPECIES COMPOSITION: LARGEMOUTH BASS, BLUEGILL, GREEN SUNFISH, GOLDEN SHINER, GIZZARD SHAD, WARMOUTH, PUMPKINSEED, AND BLACK AND WHITE CRAPPIE.

WHEN THE COMMUNITY OF SESSER IS ABLE TO RELY EXCLUSIVELY UPON REND LAKE AS A WATER SUPPLY, THE POTENTIAL DEVELOPMENT AND MAINTENANCE OF SESSER LAKE AS A SPORT FISHING AREA WILL BECOME MORE PRACTICAL.

SUNSET CLUB LAKE (13); T7S, R2E, SECTION 20; CLUB; SURFACE ACRES = 31.2; MAXIMUM DEPTH = 8.8 FEET; SHORELINE LENGTH = 1.6 MILES; CONSTRUCTED = 1905.

SUNSET CLUB LAKE IS LOCATED APPROXIMATELY 6 MILES NORTHWEST OF WEST FRANKFORT, MORE OR LESS IN THE SOUTH-CENTRAL PART OF THE COUNTY. IT IS FOR THE MOST PART A RATHER SHALLOW LAKE. OVER THE YEARS FISHING SUCCESS HAS BEEN SOMEWHAT LESS THAN DESIRABLE BECAUSE OF THE ABUNDANCE OF UNDERSIZE BLUEGILL AND CRAPPIE. SELECTIVE THINNING OF THESE SPECIES WITH ROTENONE TO IMPROVE THEIR GROWTH HAS BEEN ATTEMPTED BUT RESULTS HAVE BEEN ONLY PARTIALLY SUCCESSFUL. BOTH THE BASS AND BASS FISHERMAN SUFFER AS A CONSEQUENCE OF THIS DOMINATION BY THE SMALLER, LESS DESIRABLE BLUEGILL AND CRAPPIE. CHANNEL CATFISH HAVE BEEN STOCKED PERIODICALLY IN ORDER TO IMPROVE THE FISHERY. CARP AND SEVERAL OTHER ROUGH SPECIES ARE PRESENT IN SUFFICIENT NUMBER TO KEEP THE WATER ROILED. AS A CONSEQUENCE, WEEDS ARE NOT A PROBLEM. THESE BOTTOM FEEDING FISH MAY BE CREATING DETRIMENTAL SIDE EFFECTS TO THE GAME FISH POPULATION. GAME FISH, BEING SIGHT FEEDERS, ARE IMPAIRED IN THEIR ABILITY TO FIND AND CAPTURE FOOD ORGANISMS IN A MUDDY WATER TYPE OF SITUATION. MANIPULATION OF THE FISH POPULATION WITH FISH TOXICANTS IS THE ONLY PRACTICAL METHOD OF IMPROVING THE CONDITION FOR GOOD SPORT FISHING IN THIS LAKE.

IN ADDITION TO THE SPECIES MENTIONED ABOVE THE LAKE CONTAINS REDEAR SUNFISH,

FLIER, BOWFIN, FRESHWATER DRUM, YELLOW BULLHEAD, BIGMOUTH AND SMALLMOUTH BUFFALO, WARMOUTH, GREEN SUNFISH AND GAR.

USE OF THE LAKE AND ITS ADJOINING PROPERTY IS LIMITED TO MEMBERS OR INVITED GUESTS.

WEST FRANKFORT NEW RESERVOIR (14); T7S, R4E, SECTION 18; PUBLIC; SURFACE ACRES = 214.0; MAXIMUM DEPTH = 15.0 FEET; SHORELINE LENGTH = 5.5 MILES; CONSTRUCTED = 1945.

LOCATED ABOUT 1.5 MILES SOUTHWEST OF THOMPSONVILLE, THIS LAKE LIES IN THE SOUTHEASTERN SECTOR OF THE COUNTY. THE MANAGEMENT HISTORY IS QUITE LENGTHY, INCLUDING PERIODIC SUPPLEMENTAL STOCKINGS OF FISH, MAINLY CHANNEL CATFISH, AND THE CONTROL OF UNDERWATER AND EMERGENT AQUATIC VEGETATION.

ALL OF THE SHALLOWER PORTIONS OF THE LAKE BECOME CHOKED WITH BRITTLE NAIAD, COONTAIL, AND FLOATING LEAF PONDWEEDS DURING THE SUMMER MONTHS. THE GROWTH OF SOME OF THESE WEEDS EXTENDS OUT TO A DEPTH OF 6 FEET OR MORE, GIVING AN INDICATION OF HOW CLEAR THE WATER BECOMES. APPLICATIONS OF HERBICIDES HAVE BEEN SUCCESSFUL IN CONTROLLING THESE WEEDS.

LOTUS, A PLANT BEARING A LARGE SPHERICAL LEAF ATOP A STALK, WHICH MAY BE EITHER FLOATING ON OR STANDING ABOVE THE WATER'S SURFACE, HAS GRADUALLY INVADDED MUCH OF THE SHALLOW AREA IN THE EASTERN END OF THE LAKE. UNTIL THE SUMMER OF 1972, AT WHICH TIME A MAJOR WEED CONTROL PROJECT WAS UNDERTAKEN, A 10 ACRE PATCH OF LOTUS WAS VISIBLE TO THE EAST FROM THE ROAD THAT DIVIDES THE LAKE INTO TWO PARTS. APPROPRIATE HERBICIDES WERE USED TO CURB A FURTHER SPREAD TO UNINFESTED AREAS.

BIOLOGISTS OF THE DIVISION OF FISHERIES HAVE SAMPLED THE FISH POPULATION WITH ELECTRO-FISHING EQUIPMENT ON SEVERAL OCCASIONS. THE NEED FOR TAKING MEASURES TO REDUCE THE NUMBERS OF SMALL SUNFISH HAS BEEN SHOWN. WITH REND LAKE SERVING AS THE MAIN SOURCE OF WATER FOR THE RESIDENTS OF THE CITY, WEST FRANKFORT SHOULD FIND IT MORE FEASIBLE TO UNDERTAKE CERTAIN MANAGEMENT OPERATIONS TO IMPROVE THE FISH POPULATION WHICH IT PREVIOUSLY HAS HAD TO FORGO.

THAT AREA OF THE LAKE WHICH LIES ON THE WEST SIDE OF THE COUNTY ROAD WHICH DIVIDES THE LAKE INTO TWO PARTS IS HEAVILY UTILIZED BY WATER SKIERS. THIS IS THE DEEPER AND LARGER PART OF THE LAKE; THE DAM BEING SITUATED AT THE EXTREME WESTERN END. COTTAGES, CABINS, AND BOATDOCKS LINE MOST OF THE LAKE'S SHORELINE, THE ONLY OBVIOUS EXCEPTION BEING IN THE UPPER OR EASTERN END. THERE ARE NO LAUNCH SITES FOR PUBLIC WATERCRAFT EXCEPT FOR A CONCRETE RAMP ON THE WEST ALONG THE NORTH SHORE. USE OF THIS RAMP IS RESTRICTED, AS IT IS ADMINISTERED BY A LOCAL SPORTSMEN'S GROUP. THERE IS ALSO A SMALL SAND BEACH IMMEDIATELY ADJACENT TO THIS LAUNCH SITE. FURTHER WEST, ALONG THE NORTH SHORELINE, THERE IS A MUCH LARGER BEACH USED BY YOUNGSTERS BELONGING TO VARIOUS ORGANIZATIONS; PRINCIPAL AMONG WHICH ARE THE 4-H CLUBS OF THE SURROUNDING VICINITY.

WEST FRANKFORT OLD RESERVOIR (15); T7S, R4E, SECTION 19 & 30; PUBLIC; SURFACE ACRES = 146.0; MAXIMUM DEPTH = 20.0 FEET; SHORELINE LENGTH = 5.0 MILES; CONSTRUCTED = 1927.

THE OLD RESERVOIR AT WEST FRANKFORT WAS REPLACED IN 1945 BY THE NEWER LAKE AS THE WATER NEEDS OF THE CITY INCREASED. THE OLDER LAKE IS LOCATED ABOUT 1 MILE SOUTHWEST OF THE NEWER LAKE.

INFORMATION IN DIVISION OF FISHERIES FILES PERTINENT TO MANAGEMENT REQUESTS CONCERNING THE LAKE AND ITS FISH POPULATION GOES BACK TO 1952. THE HISTORY OF THE LAKE INCLUDES DATA COLLECTED DURING FISH SAMPLING OPERATIONS. THE DATA REFLECTS THE DESIRABILITY OF FISHING IN THAT INDIVIDUAL FISH OF GOOD SIZE HAVE BEEN AVAILABLE.

OVERALL, HOWEVER, THE LAKE'S FISHERY HAS BEEN IN NEED OF MANIPULATION. AS IS TYPICAL OF SO MANY LAKES, AN OVER-ABUNDANCE OF SUNFISH, WHICH ARE TOO SMALL TO BE OF INTEREST IS ONE OF THE BIGGEST PROBLEMS CONFRONTING THE ANGLER.

EXTENSIVE GROWTHS OF UNDERWATER VEGETATION SIMILAR TO THOSE OCCURRING IN THE NEWER RESERVOIR ARE PRESENT. SUCH GROWTHS HAVE BEEN CONTRIBUTING TO THE ABUNDANCE OF SUNFISHES BY PROVIDING TOO MUCH PROTECTION FROM PREDATION BY LARGEMOUTH BASS. EVEN WITH THE PROBLEM OF TOO MANY SUNFISH AND UNDERWATER WEEDS, THE LAKE HAS A GOOD LARGEMOUTH BASS POPULATION.

THE LAKE'S POTENTIAL AS A RECREATIONAL AREA, PARTICULARLY ITS POTENTIAL AS A MORE MANAGEABLE FISHERY RESOURCE, HAS IMPROVED AS A RESULT OF THE DEVELOPMENT OF REND LAKE. AS A COUPLE OF POSSIBLE ALTERNATIVES, SELECTIVE OR COMPLETE REHABILITATION OF THE FISH POPULATION MAY BE DECIDED UPON. THE PEOPLE OF WEST FRANKFORT AND THE OUTLYING AREAS ARE IN THE ENVIABLE POSITION OF HAVING NOT JUST ONE BUT TWO GOOD SIZED LAKES WHICH THEY CAN DEVELOP FOR BETTER SPORT FISHING IN THE FUTURE.

IN ADDITION TO BLUEGILL AND LARGEMOUTH BASS, THE FISH POPULATION CONTAINS YELLOW BASS, YELLOW BULLHEADS, WARMOUTH, GRASS PICKEREL, YELLOW PERCH, CHANNEL CATFISH, GREEN SUNFISH AND BLACK AND WHITE CRAPPIE.

ZEIGLER RESERVOIR (16); T7S, R2E, SECTION 7; PUBLIC; SURFACE ACRES = 54.8; MAXIMUM DEPTH = 20.0 FEET; SHORELINE LENGTH = 3.3 MILES; CONSTRUCTED = 1951.

LOCATED APPROXIMATELY 2.5 MILES NORTHEAST OF ZEIGLER, THIS LAKE LIES IN THE SOUTHWESTERN PART OF THE COUNTY. ALTHOUGH PART OF THE CITY'S WATER SUPPLY SYSTEM FOR YEARS, IT RECEIVED PARTIAL TREATMENTS WITH ROTENONE BOTH IN 1961 AND AGAIN IN 1964. THE PURPOSE OF THESE TWO PROJECTS WAS TO SELECTIVELY THIN OUT PORTIONS OF THE LARGE SHAD AND STUNTED BLUEGILL POPULATIONS. IN 1965 THE LAKE'S SURFACE AREA WAS PURPOSELY REDUCED BY ABOUT 50 PERCENT. BY DRAWING THE LAKE LEVEL DOWN AND CONFINING THE FISH POPULATION TO A SMALLER AREA, IT WAS HOPED THAT THE PREDATOR FISH WOULD CONSUME A SIGNIFICANT NUMBER OF THE OVERABUNDANT SMALL SUNFISH. A 1970 FISH POPULATION SURVEY REVEALED THE PRESENCE ONCE AGAIN OF AN EXCESSIVE NUMBER OF UNDER-SIZED BLUEGILL AND LARGEMOUTH BASS REPRODUCTION WAS WANTING. THE INSPECTING BIOLOGIST RECOMMENDED TOTAL ERADICATION OF THE EXISTING FISHERY FOLLOWED WITH A RESTOCKING OF LARGEMOUTH BASS, REDEAR SUNFISH, BLUEGILL AND CHANNEL CATFISH. NOW THAT THE CITY OF ZEIGLER OBTAINS ITS WATER FROM REND LAKE, THE MANAGEMENT POTENTIAL OF THE LAKE HAS BEEN GREATLY ENHANCED.

IN ADDITION TO THE SPECIES OF FISH MENTIONED ABOVE THE LAKE CONTAINS YELLOW BULLHEADS, WHITE CRAPPIE, WARMOUTH, GOLDEN SHINERS AND GRASS PICKEREL.

TABLE 3

SUMMARY OF ADDITIONAL IMPOUNDMENTS

SIZE CATEGORIES (ACRES)	NUMBER	TOTAL ACRES
0.1 - 0.4	1049	207.9
0.5 - 0.9	239	148.0
1.0 - 5.9	182	442.3
6.0 - 10.9	5	39.0
11.0 - 40.9	4	64.9
TOTAL	1479	902.1



## STREAMS

MAJOR STREAMS ARE DESCRIBED BY NAME, LOCATION OF STREAM MOUTH (OR POINT WHERE IT LEAVES THE COUNTY), AREA, LENGTH AND GRADIENT. ADDITIONAL DESCRIPTIVE INFORMATION IS INCLUDED WHERE APPLICABLE. A SUMMARY IS GIVEN IN TABLE 2. NUMBERS IN PARENTHESES REFER TO STREAM LOCATIONS WHICH ARE SHOWN IN FIGURE 7.

BIG MUDDY RIVER (1); T7S, R1E, SECTION 36; SURFACE ACRES = 158.0; MILES IN COUNTY = 22.5; AVERAGE WIDTH = 58.0 FEET; GRADIENT = APPROX. 1.5 FEET PER MILE.

PORTIONS OF THE BIG MUDDY RIVER WERE INCLUDED AS A PART OF RIVER BASIN STUDIES MADE IN ILLINOIS IN 1964 (LOPINOT, 1965). TWO OF THE STATIONS THAT WERE SET UP AS A PART OF THIS STUDY ARE FOUND IN FRANKLIN COUNTY, ONE BEING WEST FRANKFORT AND THE OTHER NEAR BENTON.

THE RIVER IS APPROXIMATELY 122 MILES IN LENGTH. IT ORIGINATES IN JEFFERSON COUNTY AND THROUGHOUT ITS ENTIRE LENGTH IT DRAINS APPROXIMATELY 2,400 SQUARE MILES IN SEVEN COUNTIES.

AT THE FRANKLIN COUNTY STATIONS THE FOLLOWING FINDINGS WERE MADE: FORAGE FISH SUCH AS MINNOWS, SHINERS, AND DARTERS MADE UP 60% BY NUMBER AND 10% BY WEIGHT OF THE FISH SAMPLED; COMMERCIAL SPECIES SUCH AS CARP, BUFFALO, GAR, AND SUCKERS MADE UP 3% BY NUMBER AND 47% BY WEIGHT; AND GAME FISH SUCH AS THE VARIOUS SUNFISHES, BASSES, AND CATFISHES AMOUNTED TO 37% BY NUMBER AND 43% BY WEIGHT.

THE BIG MUDDY RECEIVES POLLUTIONAL DISCHARGES ALONG ITS COURSE FROM COAL MINING OPERATIONS AND OIL PRODUCTION AREAS.

FISHING PRESSURE IS HEAVY AT THE TAILWATER SECTION IMMEDIATELY BELOW REND LAKE. IN THE SOUTHERN PART OF THE COUNTY IT IS LIGHT TO MODERATE BUT BECOMES PROGRESSIVELY HEAVIER AS ONE MOVES DOWNRIVER TOWARD ITS JUNCTURE WITH THE MISSISSIPPI RIVER.

EVIDENCE OF A WALLEYE POPULATION WAS FOUND IN THE LOWER PART OF THE RIVER AROUND THE MURPHYSBORO AREA. SOME COMMERCIAL FISHING IS CARRIED ON THROUGHOUT THE RIVER'S LOWER PORTION. FOR THE MOST PART, HOOK AND LINE FISHING FOR THE GENERAL PUBLIC IS LIMITED LARGELY TO THOSE AREAS WHERE SOME TYPE OF PUBLIC ROAD CROSSES THE RIVER.

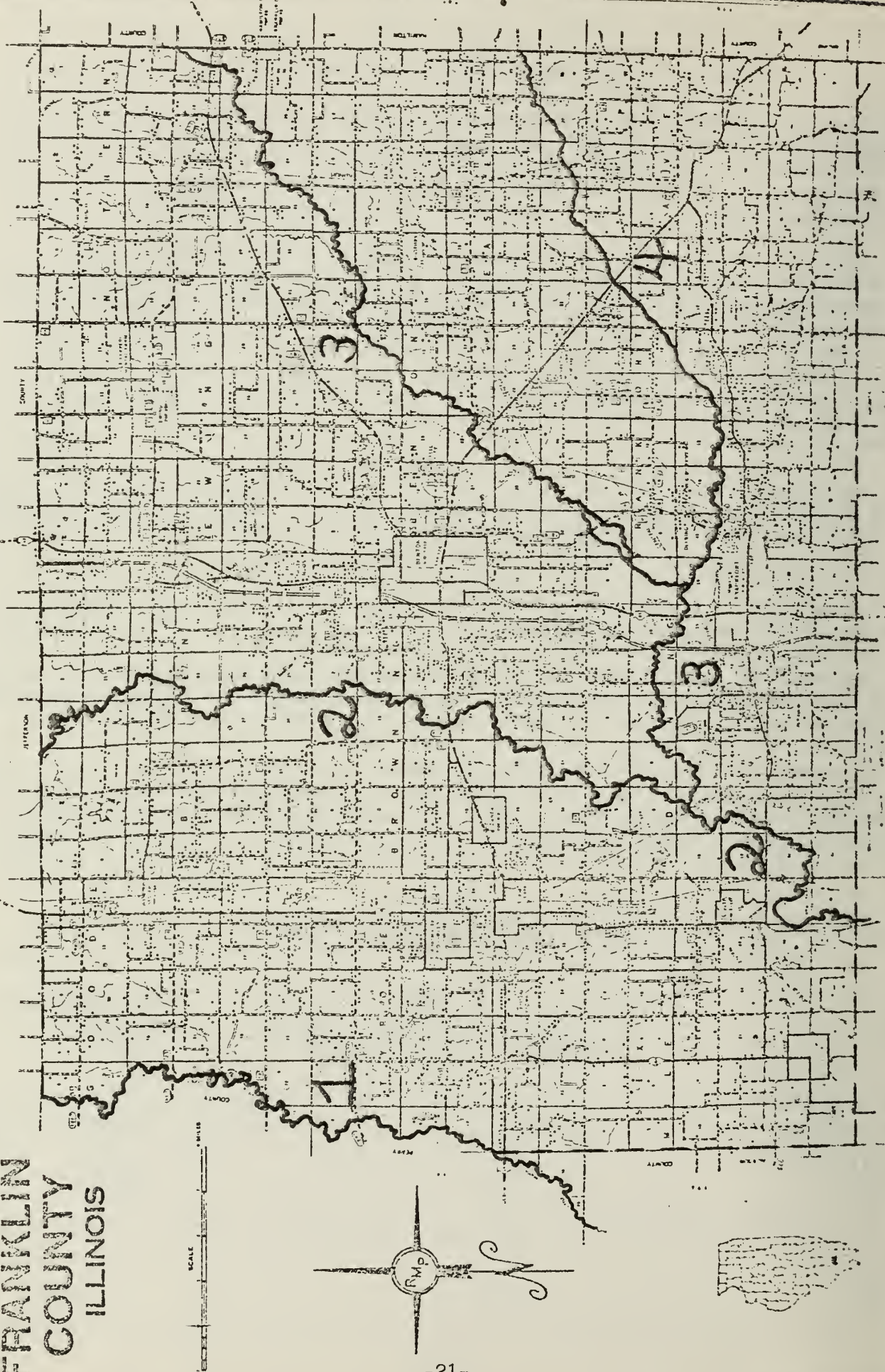
TABLE 2

### MAJOR STREAMS IN FRANKLIN COUNTY

NAME	AVERAGE WIDTH (FEET)	TOTAL LENGTH IN COUNTY (MILES)	APPROX. SURFACE AREA (ACRES)
BIG MUDDY RIVER	58.0	22.5	158.0
MIDDLE FORK BIG MUDDY	22.6	18.0	49.3
LITTLE MUDDY RIVER	32.5	21.5	84.7
EWING CREEK	14.3	13.0	22.5
TOTAL			314.5

FIGURE 7  
 PRINCIPAL STREAMS OF FRANKLIN COUNTY  
 (Numbers refer to those in text)

GENERAL HIGHWAY MAP  
 FRANKLIN  
 COUNTY  
 ILLINOIS





MIDDLE FORK BIG MUDDY RIVER (2); T7S, R3E, SECTION 18; SURFACE ACRES = 49.3; MILES IN COUNTY = 18.0; AVERAGE WIDTH = 22.6 FEET; GRADIENT = APPROXIMATELY 2.2 FEET PER MILE.

THE MIDDLE FORK OF THE BIG MUDDY RIVER WAS STUDIED AS A PART OF THE STREAM BASIN STUDIES MADE THROUGHOUT THE STATE IN 1964. A SAMPLING STATION WAS SET UP AT ABOUT THE MIDPOINT OF THE STREAM IN THE VICINITY OF BENTON. OIL, PROBABLY RUNOFF FROM NEARBY OIL FIELDS, WAS NOTED AS ONE TYPE OF POLLUTION THAT WAS PRESENT AT THAT TIME (TABLE 4). GASEOUS SUBSTANCES COULD ALSO BE OBSERVED AS THE BOTTOM WAS DISTURBED.

ROAD CROSSINGS OFFER ABOUT THE GREATEST PUBLIC ACCESS THAT IS TO BE FOUND THROUGHOUT THE RIVER'S LENGTH, AND FISHING PRESSURE BECOMES PROGRESSIVELY HEAVIER AS ONE PROCEEDS DOWNSTREAM. CARP AND VARIOUS SPECIES OF SUNFISH ARE THE MOST HEAVILY FISHED FOR AND FREQUENTLY CAUGHT FISH.

THE 1964 STUDY ALSO REVEALED THAT BY NUMBERS THE FORAGE SPECIES (DARTERS, SHINERS, AND MINNOWS) MADE UP 54% OF THE COLLECTION, WHEREAS GAME FISH AND COMMERCIAL FISH WERE 42% AND 4% RESPECTIVELY. HOWEVER, BY WEIGHT THE COMMERCIAL SPECIES AMOUNTED TO 71% WHILE GAME AND FORAGE FISH WERE 24% AND 5% RESPECTIVELY.

LITTLE MUDDY RIVER (3); T5S, R1E, SECTION 8; SURFACE AREA = 84.7; MILES IN COUNTY = 21.5; AVERAGE WIDTH = 32.5 FEET; GRADIENT = APPROXIMATELY 1.9 FEET PER MILE.

TWO SAMPLING STATIONS WERE ESTABLISHED IN THE LITTLE MUDDY DURING THE 1964 RIVER BASIN STUDIES CONDUCTED THROUGHOUT ILLINOIS. ONE OF THESE STATIONS WAS LOCATED NOT FAR FROM SESSER; THE OTHER NEAR ELKVILLE. SPECIES OF FISH THAT ARE KNOWN TO BE PRESENT ARE BULLHEADS, CARP, CRAPPIE, DOGFISH, CHANNEL CATFISH, LARGEMOUTH BASS, BLUEGILL, GREEN SUNFISH, AND WARMOUTH. THE FIRST THREE SPECIES LISTED ARE THE ONES MOST OFTEN TAKEN BY ANGLERS. PUBLIC ACCESS IS LIMITED; BEING CONFINED ALMOST EXCLUSIVELY TO THOSE POINTS WHERE A PUBLIC ROAD CROSSES THE RIVER.

FISH COLLECTIONS THAT WERE MADE AT THE STATION SHOWED THAT GAME FISH MADE UP 48% BY NUMBER AND 42% BY WEIGHT OF THE COLLECTION. FORAGE FISH WERE 43% BY NUMBER AND 3% BY WEIGHT, AND COMMERCIAL FISH WERE 9% BY NUMBER AND 55% BY WEIGHT.

EWING CREEK (4); T7S, R3E, SECTION 18; SURFACE ACRES = 22.5; MILES IN COUNTY = 13.0; AVERAGE WIDTH = 14.3 FEET; GRADIENT = APPROXIMATELY 6 FEET PER MILE.

EWING CREEK IS A SMALL MEANDERING STREAM ARISING IN THE EASTERN PORTION OF THE COUNTY NORTH OF THOMPSONVILLE AND FLOWING IN A WESTERLY DIRECTION TO ITS JUNCTION WITH THE MIDDLE FORK OF THE BIG MUDDY NORTH OF WEST FRANKFORT. IT IS A STREAM OF MODERATE GRADIENT IN ITS UPPER REACHES, CHANGING TO A LOW GRADIENT WATER COURSE IN ITS LOWER SECTION. IT DRAINS PRIMARILY PASTURE AND ROW-CROP LAND WITH THREE PATCHES OF TIMBER SCATTERED THROUGHOUT ITS WATERSHED AND GENERALLY TIMBER ALONG ITS BANKS. THE SILT LOAD IS MODERATE AND IS THE MOST IMPORTANT TYPE OF POLLUTANT. ACID MINE WASTES ALSO ENTER EWING CREEK.

SPORT FISHING OPPORTUNITIES ARE LIMITED DUE TO THE SMALL SIZE OF THE STREAM. IN THE LARGER POOLS IN THE LOWER REACHES OF THE STREAM OCCASIONAL CATCHES OF BULLHEADS, CARP AND SUNFISHES ARE MADE. IN THE UPPER PORTION OF THE STREAM THE POPULATION CONTAINS SMALLER SPECIES SUCH AS SHINERS, TOPMINNOWS, CHUBS, CHUBSUCKERS AND DARTERS.

TABLE 4  
PHYSICAL FEATURES RELATIVE TO SAMPLING STATIONS

Stream	County	Location	Date	Visible Industrial Pollution		Turbidity (Inches)	Predominate Bottom Type	Maximum Depth (Ft.)	Flow (F/S)	Fishermen Usage
Little Muddy River	Franklin- Perry	T5S, R1E, NW8	July 1, 1964	No	7.4	14	Gravel	3.0	Trace	Limited
Big Muddy River	Franklin	T7S, R2E, NW29	July 2, 1964	No	7.4	11	Rock	3.5	0.60	Moderate
Middle Fork B. M. River	Franklin	T7S, R3E, NW5	July 2, 1964	Yes	7.2	14	Silt	3.0	Trace	Moderate
Middle Fork B. M. River	Franklin	T5S, R2W, NW35	July 1, 1964	No	7.0	5	Silt	5.0	0.50	Moderate

(Lopinot, 1965)

## SUMMARY OF INVENTORY DATA

### POPULATION AND AREA

POPULATION DECREASED FROM 39,281 IN 1960, TO 38,329 IN 1970. IT IS EXPECTED TO REMAIN FAIRLY CONSTANT THROUGH THE 1970'S AND THEN INCREASE TO 48,000 BY 2020 (PETERSON, 1967). THE POPULATION HAS BEEN CLASSIFIED AS 48.1 PERCENT URBAN. IN 1970 THE POPULATION OF THE MAJOR TOWNS AND COMMUNITIES WAS AS FOLLOWS:

WEST FRANKFORT	8,836
BENTON (COUNTY SEAT)	6,833
CHRISTOPHER	2,910
ZEIGLER	1,940
SESSER	2,125
ROYALTON	1,166

ALL OTHER COMMUNITIES HAD POPULATIONS OF LESS THAN 1,000.

IN 1970, FRANKLIN COUNTY RANKED 35<sup>TH</sup> IN POPULATION AMONG THE 102 COUNTIES OF ILLINOIS AND HAD A POPULATION DENSITY OF 86.8 PEOPLE PER SQUARE MILE. WITH ITS 434 SQUARE MILES, IT RANKS 67<sup>TH</sup> (THE SAME AS SCHUYLER COUNTY) IN LAND AREA. THERE ARE ABOUT 193,000 ACRES OF CROP AND PASTURE LAND AND 50,000 ACRES OF TIMBER; THE LATTER FIGURE REPRESENTING ABOUT 18 PERCENT OF THE ORIGINAL TIMBER LAND IN THE COUNTY (ILL. DIVISION OF WILDLIFE RESOURCES, 1967).

### WATER RESOURCES

THE NUMBER OF ACRES IN LAKES, PONDS, AND STREAMS PER CAPITA IS 0.29.

THERE ARE 16 PUBLIC AND ORGANIZATIONAL LAKES OF 6.0 SURFACE ACRES OR LARGER WITH A COMBINED TOTAL OF 9,828.8 ACRES. LOCATIONS ARE PRESENTED IN FIGURE 5. IN ADDITION, THERE ARE ABOUT 1,500 PRIVATELY OWNED LAKES AND PONDS COMPRISING SOME 900 ACRES OF WATER (TABLE 3).

FRANKLIN COUNTY HAS 4 PRINCIPAL STREAMS WITH A COMBINED LENGTH OF 75.0 MILES AND AN AREA OF 314.5 ACRES. THE BIG MUDDY RIVER IS THE MOST IMPORTANT RECREATIONAL STREAM. A SIGNIFICANT FISHERY HAS DEVELOPED ON THE RIVER IMMEDIATELY BELOW REND LAKE WITH SUCH SPECIES AS CHANNEL CATFISH, CRAPPIE, BULLHEADS, DRUM, AND CARP MAKING UP A LARGE PART OF THE CATCH.

NEW PONDS HAVE BEEN ADDED AT A RATE OF 15 TO 20 PER YEAR, THE MAJORITY OF WHICH ARE 0.5 ACRE OR MORE IN SURFACE AREA. PONDS MAKE UP ABOUT 8 PERCENT OF THE TOTAL WATER ACREAGE IN THE COUNTY AND OFFER QUALITY FISHING AND OTHER FORMS OF RECREATION.

### LAKE MORPHOMETRY AND ORIGIN

THE LAKES DESCRIBED IN THIS REPORT ARE ARTIFICIAL, MEANING MAN-MADE LAKES. ALL ARE WATERSHED LAKES, HAVING BEEN FORMED BY A DAM ACROSS A VALLEY. THEIR SHORELINES ARE GENERALLY IRREGULAR, WITH SOME HAVING LARGE BAYS AND SMALLER COVES AND INLETS. SUCH SHORELINES ARE TYPICAL OF ARTIFICIAL LAKES AND CONTRAST TO THE MORE REGULAR SHORELINES OF NATURAL BOTTOMLAND LAKES FOUND ALONG THE MAJOR RIVER FLOODPLAINS IN ILLINOIS.

MAXIMUM DEPTHS VARY FROM 8.8 FEET IN SUNSET FISHING CLUB TO 35.0 FEET IN REND LAKE. DEPTH AFFECTS THE POUNDS OF FISH PER SURFACE ACRE THAT A LAKE WILL SUPPORT. SUNLIGHT IS NECESSARY FOR THE PRODUCTION OF PLANT PLANKTON (PHYTO-PLANKTON), WHICH IS THE BASE OF THE AQUATIC FOOD CHAIN. IN THE PROCESS OF PHOTOSYNTHESIS OXYGEN IS GIVEN

OFF DURING PLANT GROWTH. SINCE DISSOLVED OXYGEN AND PHYTO-PLANKTON ARE BASIC TO THE PRODUCTION OF FISH FOOD ORGANISMS, MANY OF WHICH LIVE ON THE MUD AND DETRITUS BENEATH THE WATER SURFACE, PRODUCTION OF FISH IS ENHANCED IN A LAKE WITH A LARGE ZONE OF PRODUCTIVITY COMPARED TO A LAKE WITH A SMALLER ZONE. THEREFORE, SHALLOW LAKES TEND TO SUPPORT MORE POUNDS OF FISH PER SURFACE ACRE THAN DEEP LAKES, UNLESS A LAKE IS SO SHALLOW THAT WINTER OR SUMMER KILL OCCURS (SEE SECTION ON WATER QUALITY).

THE TYPE OF WATERSHED DETERMINES HOW RAPIDLY WATER WILL RUN OFF DURING A RAIN AND HOW QUICKLY A LAKE WILL FILL WITH SEDIMENT. THE SLOWEST RUNOFF AND LEAST SEDIMENT OCCUR FROM A TIMBER WATERSHED; FOLLOWED BY PASTURE AND ROW CROPS. THE LATTER IS THE LEAST DESIRABLE AND REQUIRES SOIL CONSERVATION PRACTICES, IF THE LAKE IS TO PROVIDE MAXIMUM RECREATIONAL BENEFITS.

MOST OF THE PONDS ARE MAN-MADE, THE WATERSHED RUNOFF BEING IMPOUNDED BY A DAM AS WITH THE LAKES. SOME ARE CALLED DUG-OUT PONDS, WITH LITTLE OR NO WATERSHED AND DEPEND PRIMARILY ON DIRECT RAINFALL FOR FILLING.

### WATER QUALITY

IN STREAM SURVEYS MADE IN FRANKLIN COUNTY IN 1964, PH VALUES RANGED FROM 7.0 TO 7.4 (LOPINOT, 1965). A PH VALUE INDICATES WHETHER WATER MIGHT BE TOO HIGH IN ALKALINITY (HIGH PH) OR HAVE TOO MUCH ACIDITY (LOW PH) TO SUSTAIN FISH LIFE. FISH ARE ABLE TO LIVE IN WATER HAVING A PH RANGE OF ABOUT 5 TO 10 (BENNETT, 1971). A PH OF 7.0 IS CONSIDERED NEUTRAL. THE PH VALUES INDICATED ABOVE SHOWED THE STREAMS TO HAVE A PH RANGE SUITABLE FOR SUSTAINING FISH LIFE.

ADEQUATE DISSOLVED OXYGEN IS NECESSARY TO SUPPORT FISH. A LACK OF IT SOMETIMES OCCURS IN SHALLOW LAKES IN WINTER AND SUMMER. IF ICE FORMS AND IS COVERED WITH SNOW SO SUNLIGHT CANNOT PENETRATE THE ICE, PLANTS WILL NOT BE ABLE TO MANUFACTURE OXYGEN IN THE PROCESS OF PHOTOSYNTHESIS. UNDER SUCH CIRCUMSTANCES, DISSOLVED OXYGEN WILL BE CONSUMED BY DECAYING ORGANIC MATTER AND THE LEVEL OF DISSOLVED OXYGEN NEEDED TO KEEP FISH ALIVE MAY BE INSUFFICIENT; RESULTING IN A WINTER KILL BY SUFFOCATION.

FISH MORTALITY DUE TO LACK OF OXYGEN CAN ALSO OCCUR DURING SUMMER MONTHS AFTER PERIODS OF HIGH TEMPERATURES, SEVERAL DAYS OF CLOUDY OR PARTLY CLOUDY SKIES AND LITTLE OR NO WIND (BENNETT, 1971).

TO AVOID WINTER AND SUMMER KILL, ADEQUATE WATER DEPTH IS NECESSARY. IN FRANKLIN COUNTY PONDS AND LAKES SHOULD HAVE AT LEAST 7 FEET OF WATER IN 25 PERCENT OF THE SURFACE AREA.

NOT ONLY ARE A SUITABLE PH AND ADEQUATE DISSOLVED OXYGEN NEEDED, BUT WATER TEMPERATURE CAN ALSO BE A LIMITING FACTOR. TROUT, FOR INSTANCE, REQUIRE COLDER WATER THAN LARGEMOUTH BASS. MANY LAKES AND PONDS IN SOUTHERN ILLINOIS HAVE COLD WATER DURING SUMMER MONTHS, BUT NOT ENOUGH DISSOLVED OXYGEN AT SUITABLE TEMPERATURES. IN A TYPICAL ARTIFICIAL SOUTHERN ILLINOIS LAKE, A WARM LAYER OF WATER DEVELOPS AT THE SURFACE DURING THE SUMMER AND MAY EXTEND DOWN SEVERAL FEET. BELOW THE UPPER LAYER (EPILIMNION) IS THE THERMOCLINE WHERE THE WATER TEMPERATURE AND AMOUNT OF OXYGEN DECREASE RAPIDLY WITH DEPTH. BELOW THE THERMOCLINE IS A LAYER OF COLD, UN-OXYGENATED WATER, THE HYPOLIMNION. TROUT CANNOT LIVE IN THE COLD WATER SINCE THERE IS NOT ADEQUATE OXYGEN. IN THE WATER CONTAINING ADEQUATE OXYGEN, THE TEMPERATURE IS TOO HIGH FOR SURVIVAL.

### FISHERIES

REND LAKE IS THE MOST IMPORTANT SPORT FISHING IMPOUNDMENT. LARGEMOUTH BASS, BLUEGILL AND CRAPPIE ARE THE PRINCIPAL SPORT FISHES. IN ADDITION THERE ARE CHANNEL CATFISH, BULLHEADS, DRUM AND CARP THAT WILL ADD TO THE FISHERY. NORTHERN PIKE WERE



STOCKED BEFORE THE LAKE FILLED. THE SPECIES IS NOT EXPECTED TO MAINTAIN A POPULATION INDEFINITELY, HOWEVER, DUE TO PREDATION OF LARGER FISHES ON NEWLY HATCHED FRY.

REND LAKE IS EXPECTED TO BE AN INTENSELY USED RECREATIONAL AREA NOT ONLY FOR FISHING BUT FOR BOATING, WATER-SKIING, CAMPING, PICNICKING AND HUNTING. IT HAS ADDED GREATLY TO THE RECREATIONAL OPPORTUNITIES AVAILABLE IN THE COUNTY AND SURROUNDING AREA.

A NUMBER OF LAKES EXIST IN THE COUNTY THAT FORMERLY SERVED AS MUNICIPAL WATER SUPPLIES. NOW THAT COMMUNITIES ARE OBTAINING WATER FROM REND LAKE, THESE OLD RESERVOIRS OFFER MORE POTENTIAL AS SPORT FISHING LAKES. FISHERIES MANAGEMENT TECHNIQUES SUCH AS WATER LEVEL FLUCTUATIONS, AQUATIC WEED CONTROL AND COMPLETE REHABILITATION OF UNDESIRABLE FISH POPULATIONS FOLLOWED BY RESTOCKING CAN NOW BE EMPLOYED.

THE BIG MUDDY RIVER, MIDDLE FORK AND LITTLE MUDDY RIVER ARE THE MOST IMPORTANT FISHING STREAMS, EACH OFFERING CHANNEL CATFISH, CARP, BULLHEADS, CRAPPIE AND SUNFISHES.

MANY OF THE FARM PONDS THAT ARE NOT SUBJECT TO ENTRANCE BY RIVER AND STREAM FISHES HAVE BEEN STOCKED WITH LARGEMOUTH BASS AND BLUEGILL. WHILE A TYPICAL FARM POND CANNOT INDIVIDUALLY PROVIDE QUALITY FISHING UNDER HEAVY FISHING PRESSURE, IT CAN BE AN IMPORTANT RECREATIONAL FISHING ATTRACTION. A 1963 STATE-WIDE SURVEY MADE BY THE DIVISION OF FISHERIES ON PONDS THAT HAD BEEN BUILT IN 1952 SHOWED THAT 36 PERCENT OF THE PONDS OWNERS FELT THAT THEIR PONDS PRODUCED AVERAGE TO GOOD FISHING 10 YEARS AFTER THEY WERE STOCKED (PRICE, 1964). EVEN THOUGH SUCH A PERCENTAGE POINTS OUT A NEED FOR MORE FISH POND MANAGEMENT, IT ALSO SHOWS THAT PONDS CAN PROVIDE RECREATION OVER AN EXTENDED PERIOD OF TIME.

THERE ARE TWO FEE FISHING AREAS IN THE COUNTY; ONE LOCATED NEAR ROYALTON AND THE OTHER NEAR BENTON. EACH OFFER A VARIETY OF FISHES INCLUDING LARGEMOUTH BASS, BLUEGILL AND CHANNEL CATFISH.

AT THIS TIME, THE WATERS IN THE COUNTY DO NOT HAVE COMMERCIAL FISHES, SUCH AS CARP AND BUFFALO, IN SUFFICIENT POUNDAGES TO WARRANT COMMERCIAL FISHING. EVENTUALLY, HOWEVER, THE POUNDAGE OF CARP IN REND LAKE WILL INCREASE AND THERE WILL BE A POTENTIAL FOR COMMERCIAL HARVEST.

A LIST OF FISHES RECORDED FOR FRANKLIN COUNTY IS PRESENTED IN TABLE 5. FREQUENCY OF OCCURRENCE OF SOME OF THE SPECIES IS GIVEN IN FIGURE 8.

#### WETLANDS

WETLANDS, AS CONSIDERED IN THIS REPORT, ARE THOSE LANDS WITH FREQUENT OVERFLOW, HIGH WATER TABLES AND ARE TOO WET FOR CULTIVATION. THERE ARE APPROXIMATELY 7,500 SUCH ACRES IN FRANKLIN COUNTY. THESE LANDS TYPICALLY HAVE PIN OAK AND WILLOW TREES, BUTTON BUSH, CATTAIL AND SEDGES IF THERE IS MORE OR LESS PERMANENT WATER. SQUIRRELS, WHITETAIL DEER, RABBITS, WOOD DUCKS, AND SHORE BIRDS FREQUENT THESE AREAS.

#### PUBLIC USE AND ACCESS

EXCEPT FOR ORGANIZATIONAL (CLUB AND ASSOCIATION) WATERS, ALL THE LAKES IN THIS REPORT ARE OPEN TO PUBLIC FISHING. BEING BY FAR THE LARGEST, REND LAKE HAS THE GREATEST PUBLIC USE AND OFFERS A WIDE RANGE OF RECREATIONAL ACTIVITIES. THE REND LAKE CONSERVANCY DISTRICT IS PLANNING A CONVENTION-RESORT COMPLEX WITH A 120-ROOM HOTEL. ALSO IN THE PLANS ARE 50 HOUSEKEEPING COTTAGES AND A COMMERCIAL HOTEL AND RESTAURANT. TWO MARINAS, A 27-HOLE GOLF COURSE, A TRAP AND SKEET RANGE AND AN ATHLETIC COMPLEX WITH SOFTBALL, TENNIS AND ARCHERY FACILITIES WILL ADJOIN THE HOTEL. THE STATE CONSERVATION DEPARTMENT IS DEVELOPING MORE THAN 10,000 ACRES OF LAND AROUND THE LAKE.

TABLE 5

## SPECIES OF FISH KNOWN TO OCCUR IN FRANKLIN COUNTY WATERS

<u>Common Name</u>	<u>Scientific Name*</u>
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>
Black bullhead	<i>Ictalurus melas</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Blackspotted topminnow	<i>Fundulus olivaceus</i>
Blackstripe topminnow	<i>Fundulus notatus</i>
Bluegill	<i>Lepomis macrochirus</i>
Bluntnose darter	<i>Etheostoma chlorosomum</i>
Bluntnose minnow	<i>Pimephales notatus</i>
Bowfin	<i>Amia calva</i>
Brook silverside	<i>Labidesthes sicculus</i>
Bullhead minnow	<i>Pimephales vigilax</i>
Carp	<i>Cyprinus carpio</i>
Channel catfish	<i>Ictalurus punctatus</i>
Common shiner	<i>Notropis cornutus</i>
Creek chub	<i>Semotilus atromaculatus</i>
Creek chubsucker	<i>Erimyzon oblongus</i>
Emerald shiner	<i>Notropis atherinoides</i>
Flier	<i>Centrarchus macropterus</i>
Freshwater drum	<i>Aplodinotus grunniens</i>
Gizzard shad	<i>Dorosoma cepedianum</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Grass pickerel	<i>Esox americanus vermiculatus</i>
Green sunfish	<i>Lepomis cyanellus</i>
Largemouth bass	<i>Micropterus salmoides</i>
Longear sunfish	<i>Lepomis megalotis</i>
Longnose gar	<i>Lepisosteus osseus</i>
Mosquitofish	<i>Gambusia affinis</i>
Northern pike	<i>Esox lucius</i>
Orangespotted sunfish	<i>Lepomis humilis</i>
Pirate perch	<i>Aphredoderus sayanus</i>
Pugnose minnow	<i>Notropis emiliae</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Red shiner	<i>Notropis lutrensis</i>
Redear sunfish	<i>Lepomis microlophus</i>
Redfin shiner	<i>Notropis umbratilis</i>
Ribbon shiner	<i>Notropis fumeus</i>
Sand shiner	<i>Notropis stramineus</i>
Shortnose gar	<i>Lepisosteus platostomus</i>
Slough darter	<i>Etheostoma gracile</i>
Smallmouth buffalo	<i>Ictiobus bubalus</i>
Tadpole madtom	<i>Noturus gyrinus</i>
Warmouth	<i>Lepomis gulosus</i>
White bass	<i>Morone chrysops</i>
White crappie	<i>Pomoxis annularis</i>
White sucker	<i>Catostomus commersoni</i>
Yellow bass	<i>Morone mississippiensis</i>
Yellow bullhead	<i>Ictalurus natalis</i>
Yellow perch	<i>Perca flavescens</i>

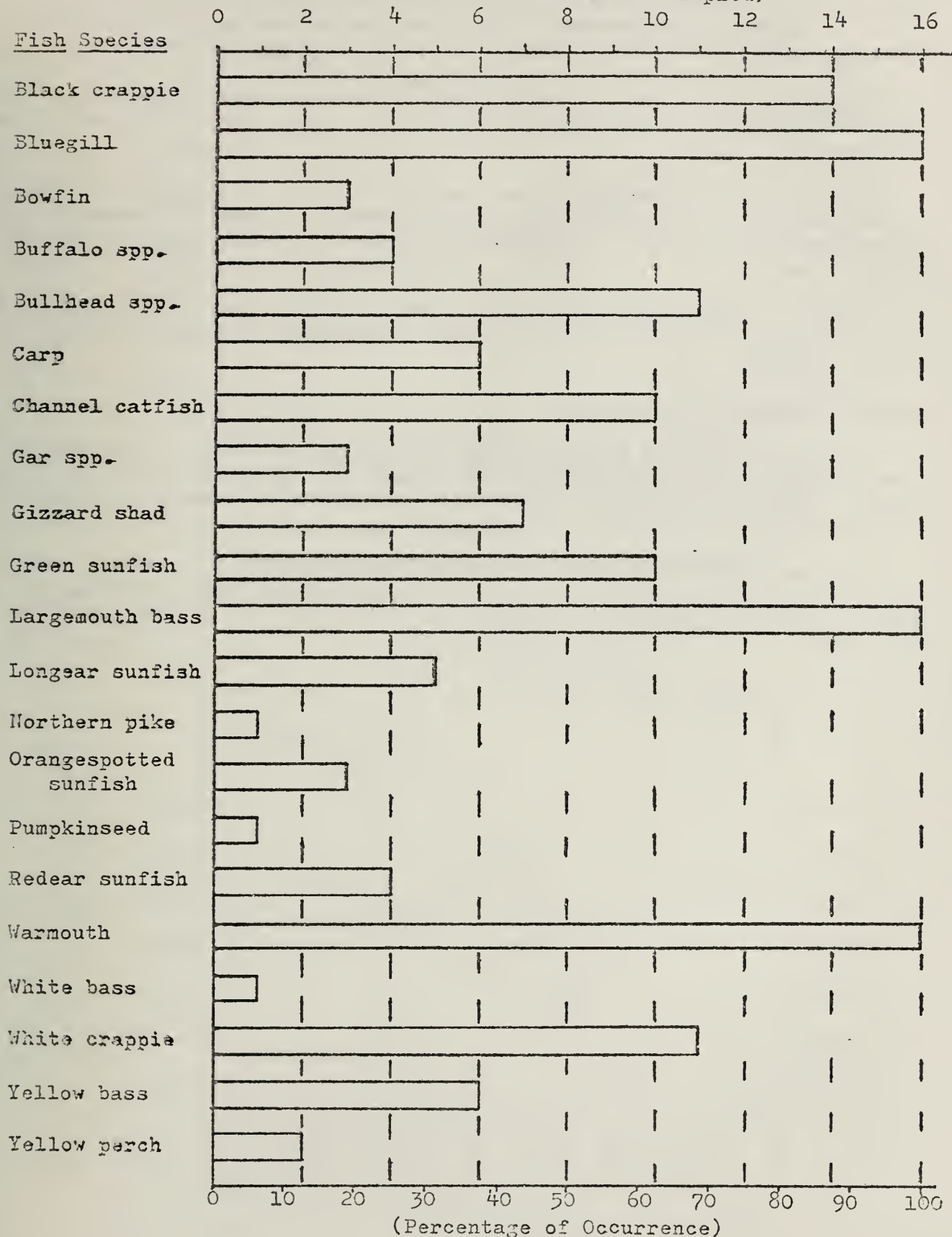
\* American Fisheries Society, 1970



FIGURE 8

FREQUENCY OF OCCURRENCE OF FISHES SAMPLED FROM 16 FRANKLIN COUNTY LAKES

(Number of Lakes Where Sampled)



ONE OF THE AREAS WILL BE MADE INTO A STATE PARK COMPLETE WITH CAMPGROUND, FISHING MARINA, SAILBOAT FACILITY, PICNIC AREAS, BRIDLE PATHS AND BICYCLE PATHS. IN OTHER AREAS THE STATE WILL MANAGE HUNTING FACILITIES AND WILDLIFE REFUGES. THE U. S. ARMY CORPS OF ENGINEERS IS DEVELOPING A 4,000 ACRE TRACT OF LAND WHICH WILL HAVE BOAT LAUNCHING RAMPS, PICNIC AREAS, CAMPING FACILITIES, MARINAS AND THREE SWIMMING BEACHES.

PUBLIC USE AT THE SMALLER LAKES CENTERS PRINCIPALLY AROUND FISHING WITH HUNTING AND WATER SPORTS BEING SIGNIFICANT ON SOME. A 4-H CAMP IS OPERATED AT WEST FRANKFORT NEW RESERVOIR.

CONSIDERABLE PUBLIC USAGE IN THE FORM OF SPORT FISHING HAS DEVELOPED BELOW THE DAM AT REND LAKE. TAILWATER FISHING IS QUITE POPULAR AT LARGE IMPOUNDMENTS, WITH ANGLERS CATCHING A VARIETY OF FISHES SUCH AS CRAPPIE, CHANNEL CATFISH, CARP AND LARGEMOUTH BASS.

ACCESS TO OTHER STREAMS AND BELOW THE PUBLIC USE AREA ON THE BIG MUDDY AT REND LAKE IS PRIMARILY FROM NEARBY COUNTY ROADS. ACCESS OVER PRIVATE PROPERTY IS CONTROLL BY THE LANDOWNER.

#### COTTAGE AND HOMESITE DEVELOPMENT

LAKE BENTON AND WEST FRANKFORT NEW RESERVOIR HAVE A NUMBER OF COTTAGES AND HOMES ALONG THE SHORELINE AND ARE THE ONLY PUBLIC LAKES IN THE COUNTY DEVELOPED IN THAT MANNER. SUNSET FISHING CLUB AND BEAVER FISHING CLUB HAVE A NUMBER OF CABINS AND SOME HOMESITES ON THEIR SHORELINES.

SUCH DEVELOPMENT IS NOT TYPICAL OF THE OTHER LAKES IN THIS REPORT. AT REND LAKE THERE WILL BE NO PRIVATELY OWNED COTTAGES OR HOMES ON THE IMMEDIATE SHORELINE. A NUMBER OF HOMES ARE EXPECTED TO BE BUILT RELATIVELY CLOSE TO THE LAKE ON PRIVATELY OWNED LAND.

FIGURE 9

SPORT FISHING LICENSE SALES  
(Resident, Non-resident, 10 Day and Special)

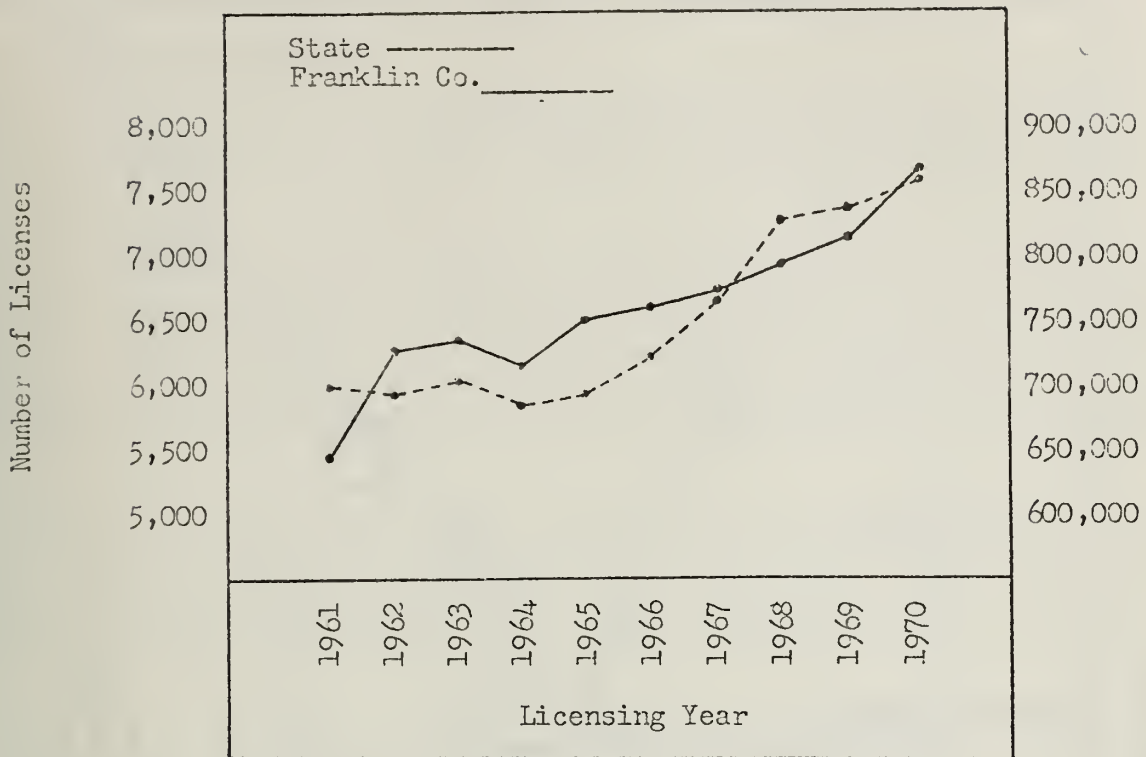


FIGURE 10

HUNTING LICENSE SALES  
(Resident and Non-resident)

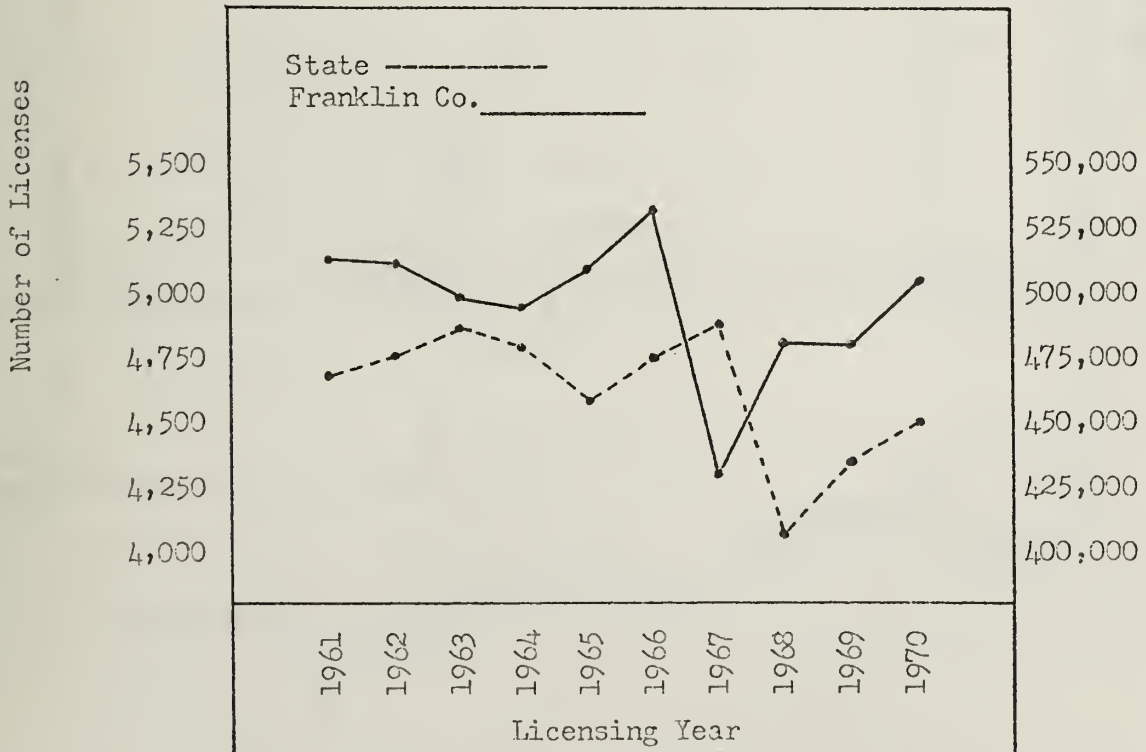
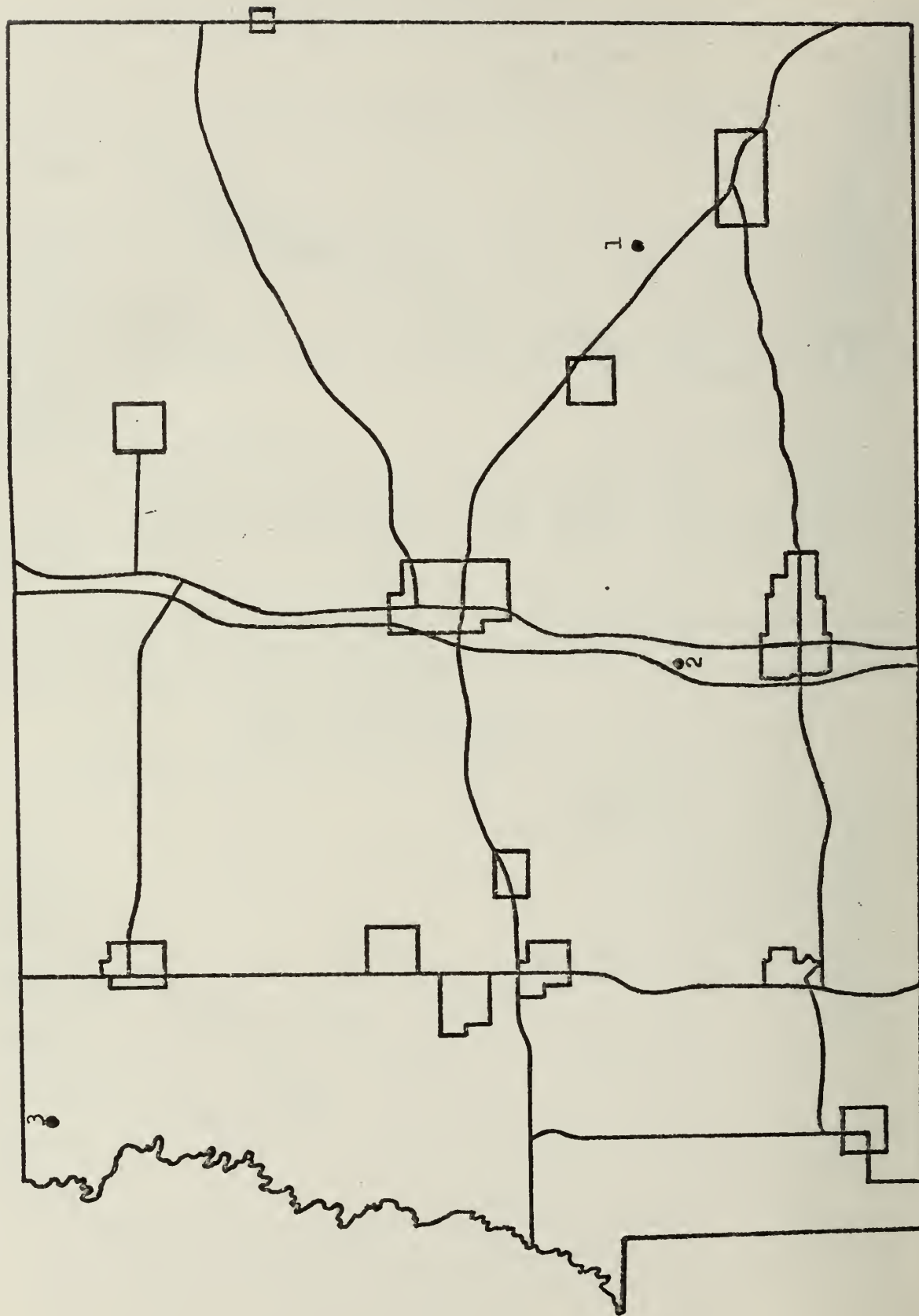


FIGURE 11  
POTENTIAL LAKE SITES



For names of towns and highway route numbers refer to Figure 2.  
Numbers correspond to those used in text.



## PRESENT AND POTENTIAL USES OF SURFACE WATER

THIS SECTION DISCUSSES SOME OF THE VARIED USES THAT ARE NOW BEING MADE OF THE SURFACE WATER AND SOME OF THE POSSIBILITIES FOR ADDING RECREATIONAL AREAS.

### FISHING (SPORT AND COMMERCIAL)

SPORT FISHING LICENSE SALES (RESIDENT, NONRESIDENT, 10-DAY AND SPECIAL), DURING THE 10-YEAR PERIOD BEGINNING IN 1960, INCREASED IN FRANKLIN COUNTY AND THROUGHOUT THE STATE (FIG. 9).

WITH THE COMPLETION OF REND LAKE, THE COUNTY NOW HAS WHAT WILL PROBABLY BECOME A LAKE WITH A STATEWIDE, IF NOT A NATIONAL, REPUTATION FOR GOOD FISHING. A POPULATION OF SPORT FISHES INCLUDING LARGEMOUTH BASS, BLUEGILL AND CRAPPIE IS DEVELOPING THAT SHOULD DEVELOP GOOD SIZED INDIVIDUALS BY 1973-74. THE LAKE ALSO CONTAINS BULLHEADS AND CHANNEL CATFISH WHICH WILL ADD TO THE ANGLERS CREEL. NORTHERN PIKE ARE PRESENT BUT ARE NOT EXPECTED TO ADD MATERIALLY TO THE FISHERY, SINCE THEY ARE NOT EXPECTED TO SPAWN SUCCESSFULLY.

A NUMBER OF MUNICIPAL WATER SUPPLY RESERVOIRS THAT ARE NO LONGER BEING USED FOR THAT PURPOSE OFFER A MUCH BETTER POTENTIAL FOR FISHERIES MANAGEMENT. WATER LEVEL DRAWDOWNS TO MANIPULATE THE FISH POPULATION, CONTROL OF AQUATIC VEGETATION WITH HERBICIDES, OR COMPLETE REHABILITATION OF AN UNDESIRABLE FISH POPULATION, FOLLOWED BY RESTOCKING WITH DESIRABLE GAME FISHES CAN NOW BE CARRIED OUT.

SPORT FISHING IN STREAMS HAS NOT BEEN INTENSE IN THE COUNTY. A MODERATE AMOUNT HAS OCCURRED ON THE BIG MUDDY, THE MIDDLE FORK AND THE LITTLE MUDDY. HOWEVER, A SIGNIFICANT FISHERY IS EXPECTED TO DEVELOP IMMEDIATELY BELOW THE DAM ON REND LAKE.

ADDITIONAL SITES FOR IMPOUNDMENTS IN FRANKLIN COUNTY WERE INCLUDED IN A REPORT BY THE ILLINOIS STATE WATER SURVEY (ILL. DEPT. OF REG. & EDUCATION, 1962). THEIR LOCATIONS ARE GIVEN IN FIGURE 11.

SITE NUMBER 1 ON EWING CREEK COULD IMPOUND A LAKE WITH 1,370 SURFACE ACRES, A DEPTH OF 30 FEET AND A WATERSHED OF 21.5 SQUARE MILES.

ON BETHEL CHURCH CREEK A LAKE SITE (No. 2) EXISTS THAT COULD CREATE A LAKE OF 300 ACRES WITH A DEPTH OF 20 FEET AND A DRAINAGE AREA OF 2.3 SQUARE MILES.

THE THIRD SITE MENTIONED IN THE ABOVE REPORT (SITE No. 3) COULD IMPOUND 120 ACRES OF WATER, HAVE A DEPTH OF 18 FEET AND A DRAINAGE AREA OF 5.0 SQUARE MILES.

TWO FEE FISHING AREAS ARE LOCATED IN THE COUNTY. ONE IS NEAR BENTON, THE OTHER NEAR ROYALTON. EACH OFFERS A VARIETY OF FISHES INCLUDING LARGEMOUTH BASS, BLUEGILL AND CHANNEL CATFISH.

COMMERCIAL SPECIES SUCH AS CARP AND BUFFALO DO NOT EXIST IN COUNTY STREAMS IN POUNDAGES SUFFICIENT TO WARRANT COMMERCIAL FISHING. IT IS LIKELY, HOWEVER, THAT A SIGNIFICANT COMMERCIAL FISHERY FOR CARP WILL DEVELOP IN REND LAKE.

AN INTEREST HAS DEVELOPED IN RECENT YEARS IN SOUTHERN ILLINOIS IN THE PROPAGATION AND COMMERCIAL PRODUCTION OF CHANNEL CATFISH. HOWEVER, THE POTENTIAL FOR CATFISH FARMING IS LIMITED DUE TO A SHORT GROWING SEASON, LACK OF ECONOMICAL WATER SUPPLIES AND UNEXPLORED MARKETS FOR THE HIGHER PRICED DOMESTIC PRODUCT (LOPINOT AND FISHER, 1969).

### BOATING

SINCE THE ILLINOIS BOAT REGISTRATION AND SAFETY ACT WENT INTO EFFECT IN 1960 2,465 BOATS HAVE BEEN REGISTERED IN THE COUNTY. THE NUMBER WILL INCREASE SIGNIFICANTLY

## AS REND LAKE USAGE ACCELERATES.

LARGE HORSEPOWER BOATING IS ALLOWED ON REND LAKE, LAKE BENTON AND WEST FRANKFORT NEW RESERVOIR. THE OTHER IMPOUNDMENTS EITHER HAVE HORSEPOWER RESTRICTIONS OR ARE TOO SMALL FOR THE SAFE USE OF SUCH MOTORS.

SAILBOATING SHOULD BECOME POPULAR ON REND LAKE SINCE THE LAKE IS RELATIVELY WIDE IN THE LOWER PART AND WILL PROVIDE GOOD BREEZES FOR SUCH ACTIVITY.

THERE ARE NO GOOD STREAMS FOR CANOEING IN THE COUNTY. NUMEROUS LOG JAMS ON THE BIG MUDDY AND ITS FORKS IMPEDE CANOEING TO THE POINT WHERE THE SPORT BECOMES WORK.

### SWIMMING

SWIMMING IS ALLOWED AT REND LAKE AND IS EXPECTED TO BECOME A MAJOR WATER SPORTS ACTIVITY. SWIMMING IS ALSO PERMITTED AT LAKE BENTON, LAKE MOSES AND WEST FRANKFORT NEW RESERVOIR. A PUBLIC SWIMMING POOL IS LOCATED IN THE WEST FRANKFORT CITY PARK. FARM PONDS HELP MEET THE DEMAND FOR THAT PARTICULAR SPORT ON A LIMITED BASIS.

### PARK ATTENDANCE AND CAMPING

PARK ATTENDANCE AND CAMPING ARE BECOMING INCREASINGLY MORE POPULAR IN ILLINOIS (TABLES 6 AND 7). THE LATTER IS CONSIDERED TO BE THE FASTEST GROWING ACTIVITY AT STATE AND FEDERAL RECREATIONAL AREAS (ILL. DEPT. OF BUS. & ECON. DEV., 1965).

THE STATE OF ILLINOIS AND U. S. CORPS OF ENGINEERS WILL OPERATE PARKS AT REND LAKE AND SUCH FACILITIES AS CAMPING SITES AND PICNICKING AREAS WILL BE INCLUDED. BOTH AGENCIES REALIZE THAT THE ESTABLISHMENT OF CAMPGROUNDS IS AN IMPORTANT PART OF LAKE DEVELOPMENT. AS MORE LEISURE TIME BRINGS ABOUT A GREATER DEMAND FOR RECREATION OPPORTUNITIES, PARK ATTENDANCE AND CAMPING WILL INCREASE AT THE LAKE.

### HUNTING AND TRAPPING

HUNTING LICENSE SALES FOR FRANKLIN COUNTY AND THROUGHOUT THE STATE DURING A 10-YEAR PERIOD BEGINNING IN 1960 ARE SHOWN IN FIGURE 10. TABLE 8 SHOWS THE SPECIES AND RELATIVE ABUNDANCE OF GAME POPULATIONS IN THE COUNTY.

NEARLY ALL OF THE UPLAND HUNTING IN FRANKLIN COUNTY IS ON PRIVATE LAND WITH PERMISSION NOT TOO DIFFICULT TO OBTAIN. THERE IS PUBLIC WATERFOWL HUNTING ON PART OF REND LAKE. IT IS EXPECTED THAT HUNTING PRESSURE WILL INCREASE IN THE COUNTY AS PEOPLE COME TO THE REND LAKE AREA FOR RECREATION. SUCH AN INCREASE WILL PROBABLY CAUSE LANDOWNERS TO POST MORE OF THE LAND AND REQUIRE PERMISSION BEFORE HUNTING.

THE TOPOGRAPHY LENDS ITSELF VERY WELL TO GAME PRODUCTION, SINCE MANY OF THE FARMS HAVE ODD AREAS SUITABLE ONLY TO TIMBER, AREAS OF THIN SOIL, DITCHBANKS, BRUSHY FENCE ROWS, POND AREAS, ODD CORNERS OF FIELDS, ETC. IF IT COULD BE DEMONSTRATED TO LANDOWNERS THAT GAME HAS A MONETARY VALUE, THERE WOULD BE MORE INTEREST IN PRODUCING A GAME CROP. AT LEAST ONE CONTROLLED HUNTING AREA HAS BEEN OPERATING IN THE COUNTY FOR A NUMBER OF YEARS AND IS CURRENTLY OPERATED ON A MEMBERSHIP BASIS ONLY. THE LAND OF THE COUNTY LENDS ITSELF WELL TO THIS TYPE OF OPERATION AND AN INCREASED POPULATION WILL PROBABLY SUPPORT MORE OF THESE AREAS.

TABLE 9 IS A RECORD OF HUNTER SUCCESS IN THE COUNTY AND ON A STATEWIDE BASIS. THE INFORMATION WAS COLLECTED FROM MAIL QUESTIONNAIRES SENT TO HUNTING LICENSE HOLDERS. THE DATA SHOW THAT HUNTER SUCCESS WAS BETTER THAN THE STATE AVERAGE FOR QUAIL AND RACCOON AND NEAR THE STATE AVERAGE FOR THE OTHER SPECIES. THERE IS GOOD INTERSPERSION OF NATIVE FOOD, NESTING COVER, AND WINTER PROTECTION ALONG WITH GRAIN CROPS IN



TABLE 6

COMPARATIVE ATTENDANCE REPORTState Parks and Conservation Areas

<u>1963</u>	<u>1972</u>
13,222,701	23,848,000

(Division of Parks and Memorials)

TABLE 7

COMPARATIVE CAMPING REPORTState Parks and Conservation Areas

<u>1963</u>	<u>1972</u>
383,401	625,393

(Division of Parks and Memorials)

RELATIVELY SMALL FIELDS. THESE CONDITIONS ARE BENEFICIAL TO QUAIL, RABBITS, SONG-BIRDS, DOVES, AND OTHER SMALL ANIMALS. THE BOTTOMLAND AREAS ARE USED HEAVILY BY MIGRATING WATERFOWL AND SHOREBIRDS, ESPECIALLY DURING SPRING AND FALL SEASONS HAVING HEAVY RAINFALL.

REMOVAL OF TIMBER WAS THE CHIEF CAUSE OF EXTERMINATION OF THE WOODLAND SPECIES SUCH AS DEER, TURKEY, RUFFED GROUSE, WOLF, BEAR, AND BOBCAT. DEER HAVE SINCE BEEN RESTOCKED AND ARE DOING WELL, INDICATING THAT THE INCREASE OF HUNTING PRESSURE WITH NO GAME LAWS, AS WELL AS TIMBER DESTRUCTION, CONTRIBUTED TO THEIR EARLIER EXTERMINATION. BEAVER HAVE BEEN REINTRODUCED AND ARE WELL ESTABLISHED. QUAIL HAVE ALSO BENEFITED BY THE ADVENT OF MAN.

EVERY PERSON CONCERNED WITH WILDLIFE CONSERVATION SHOULD CONTINUALLY KEEP IN MIND THAT HABITAT MANAGEMENT IS THE PRIMARY METHOD OF ATTAINING HIGH GAME POPULATIONS WHILE IT IS NOT POSSIBLE OR FEASIBLE TO HAVE HIGH POPULATIONS OF ALL GAME SPECIES, IT IS POSSIBLE, BY CAREFUL MANAGEMENT AND CONSERVATION TO HAVE ABUNDANT POPULATIONS OF MOST OF THEM IN THEIR PARTICULAR TYPE OF HABITAT (ILL. DEPT. OF CONSV., 1967).

IT HAS BEEN PREDICTED THAT THE AMOUNT OF CROPLAND WILL DECREASE 14,000 ACRES BY 1975 AND THAT PASTURE LAND WILL DECREASE SLIGHTLY (COOP. EXTENSION SERVICE, U. OF ILL 1962). THIS SHOULD NOT AFFECT GAME POPULATIONS ADVERSELY IF ATTENTION IS GIVEN TO THE NEEDS OF WILDLIFE (ILL. DEPT. OF CONSV., 1967).

#### AESTHETICS

AESTHETICS ARE AN IMPORTANT ELEMENT OF WATER USE. THE ADDITION OF REND LAKE TO THE OTHER WATERS OF THE COUNTY ADDS MATERIALLY TO WATER RELATED AESTHETIC VALUES. THE QUIETNESS OF A SAILBOAT RIDE, A SUNRISE MIRRORED IN WATER, A FLOCK OF GEESE OVER THE CHORUS OF FROGS ON A SPRING NIGHT ALL EMPHASIZE THE FACT THAT THERE ARE AESTHETIC VALUES THAT CANNOT BE MEASURED IN DOLLARS AND CENTS, ACRE FEET OF WATER, OR MAN DAYS USE PER YEAR. THOUGH THEY ARE INTANGIBLE, SUCH VALUES CAN BE VERY REWARDING TO THE INDIVIDUAL WHO APPRECIATES THEM.

TABLE 8

## PRESENT GAME POPULATIONS OF FRANKLIN COUNTY

<u>Mammals</u>	<u>Abundance</u>
Cottontail Rabbit	Abundant
Fox Squirrel	Common
Grey Squirrel	Abundant
White-tailed Deer	Common
Woodchuck	Common
<u>Furbearers</u>	
Raccoon	Abundant
Mink	Common
Skunk	Abundant
Weasel	Low
Muskrat	Abundant
Beaver	Common
Opossum	Abundant
Red Fox	Common
Grey Fox	Common
Coyote	Rare
<u>Game Birds</u>	
Quail	Abundant
Mourning Dove	Abundant

(ILL. DEPT. OF CONSV., 1967)

TABLE 9  
AVERAGE KILL PER HUNT

	<u>Dove</u>	<u>Squirrel</u>	<u>Quail</u>	<u>Rabbit</u>	<u>Raccoon</u>
Franklin County	3.8	2.03	3.59	2.06	2.29
State-Wide 1956-1963	3.52	2.38	2.89	2.06	1.5

(ILL. DEPT. OF CONSV., 1967)



## SURFACE WATER PROBLEMS

STREAM POLLUTION IS THE MOST IMPORTANT PROBLEM AFFECTING SURFACE WATERS. IT EXISTS MOST NOTABLY IN THE FORM OF SILTATION, RESULTING FROM SOIL EROSION, AND ACID MINE WASTE. FLUCTUATING WATER LEVELS ARE ALSO DISCUSSED IN THIS SECTION.

### POLLUTION

VERY LITTLE POLLUTION FROM SILTATION OCCURS IN THE FORESTED AREAS OF THE COUNTY OR FROM LAND THAT IS UTILIZED AS PASTURE. HOWEVER, WHERE ROW CROPS PREDOMINATE, SILTATION INVARIABLY OCCURS. WHEN SILT REACHES A STREAM, IT IS CONSIDERED A FORM OF WATER POLLUTION. EXCESSIVE SILTATION RANKS FIRST AMONG THE ENVIRONMENTAL CHANGES RESPONSIBLE FOR THE EXTIRPATION OR DECIMATION OF FISH SPECIES IN ILLINOIS (SMITH, 1971). PART OF THE SILT WASHED INTO A STREAM SETTLES TO THE BOTTOM AS SEDIMENT. SEDIMENT AFFECTS THE CAPACITY OF A STREAM TO PRODUCE AQUATIC ORGANISMS VITAL TO BIOLOGICAL BALANCE AND FISH LIFE AND CAN DESTROY SPAWNING SITES. TURBID WATER CAUSED BY SILT REMAINING IN SUSPENSION CAN BRING ABOUT DISAPPEARANCE OF AQUATIC VEGETATION. SUCH ALTERATIONS IN A STREAM HABITAT TEND TO FAVOR THE BUILDUP OF ROUGH OR COMMERCIAL FISHES AT THE EXPENSE OF GAME FISHES.

POND CREEK AND EWING CREEK ARE POLLUTED WITH ACID WASTE FROM COAL MINES. WATER DRAINING FROM BITUMINOUS COAL MINES NEARLY ALWAYS CONTAIN SULFURIC ACID. THIS ACID IS FORMED BY THE OXIDATION OF THE SULFUR OCCURRING IN THE COAL AND IN THE ROCK AND CLAY FOUND ABOVE AND BELOW THE COAL SEAMS. IN THE PRESENCE OF WATER AND UNDER THE INFLUENCE OF OXYGEN IN THE AIR OF THE MINE, THE SULFUR IS OXIDIZED AND, STILL COMBINED WITH IRON, DISSOLVES IN THE WATER AS "COPPERAS", MORE PROPERLY CALLED FERROUS SULFATE. FLOWING FROM THE MINE, THE FERROUS SULFATE IS OXIDIZED TO FERRIC SULFATE. THE IRON, AFTER THIS OXIDATION, HAS A WEAKENED AFFINITY FOR SULFURIC ACID AND IS PARTIALLY SEPARATED AS A BROWNISH-YELLOW SEDIMENT FREQUENTLY CALLED "YELLOW BOY." SULFURIC ACID, ACCOMPANIED BY SOME IRON, REMAINS IN THE WATER. WHEN SULFURIC ACID IS DISCHARGED INTO A STREAM IN QUANTITIES SUFFICIENT TO RENDER THE WATER DISTINCTLY ACIDIC, FISH ARE UNABLE TO LIVE, SINCE THROUGH DAMAGING OF THEIR GILLS, THEY ARE UNABLE TO SEPARATE OXYGEN FROM THE WATER AND DIE OF SUFFOCATION (KLASSEN, 1965).

THE STATE OF ILLINOIS SANITARY WATER BOARD HAS WORKED WITH THE COAL INDUSTRY TO ENCOURAGE EFFECTIVE CONTROL. THE SURFACED-MINED LAND RECLAMATION ACT WAS SET UP TO IMPROVE CONDITIONS AT WORKING MINES AND ALSO AFTER THEY ARE ABANDONED. MANY OF THE ACTIVE MINE COMPANIES HAVE IMPROVED THEIR OPERATING PROCEDURES AND DRAINAGE PROBLEMS TO REDUCE ACID MINE WATER. IN THE AREAS OF OLD ABANDONED WORKINGS, WHICH CONTINUE TO PRODUCE ACID, IT HAS BEEN MORE DIFFICULT TO EFFECT IMPROVEMENTS. IT WILL TAKE THE FULL COOPERATION OF ALL ELEMENTS OF THE ECONOMY OF THE AREA TO BRING ABOUT IMPROVEMENTS (KLASSEN, 1965). SATISFACTORY SOLUTIONS TO PROBLEMS OF ACID MINE WASTES AND THEIR APPLICATION WOULD HAVE FAR REACHING EFFECTS IN RECOVERING MANY MILES OF STREAMS NOT ONLY IN THIS STATE BUT IN MANY OTHERS AS WELL.

DOMESTIC SEWAGE AND ORGANIC WASTES CAN POLLUTE SURFACE WATERS BY ADDING NUTRIENT ENRICHMENT, WHICH CAN CAUSE NUISANCE ALGAE AND AQUATIC WEED PROBLEMS, AND BY ADDING MATERIALS THAT REDUCE DISSOLVED OXYGEN IN WATER DURING THE PROCESS OF DECAY. SUCH PROBLEMS ARE GREATER NEAR METROPOLITAN AREAS AND HAVE NOT BEEN SERIOUS ENOUGH IN FRANKLIN COUNTY TO CAUSE HEAVY FISH KILLS IN STREAMS OR LARGE LAKES. POND FISH KILLS DUE TO FEED OR BARN LOT DRAINAGE ARE NOT UNCOMMON, HOWEVER.

AN UPGRADING OF WASTE TREATMENT FACILITIES WILL BE NEEDED AS POPULATION DENSITIES INCREASE. RECENT AWARENESS OF THE PUBLIC TO POLLUTION PROBLEMS AND NEW AND TOUGHER POLLUTION CONTROL LAWS SHOULD HAVE A PROFOUND EFFECT IN MINIMIZING OR ELIMINATING THESE PROBLEMS.

THERE ARE HUNDREDS OF CHEMICALS, OF WHICH PESTICIDES ARE A PART, THAT POSE A NEW ENVIRONMENTAL HEALTH PROBLEM NOT ONLY TO LOWER ANIMALS BUT ALSO TO MAN. IT IS IMPOSSIBLE TO PREDICT THE EFFECTS OF LIFETIME EXPOSURE TO CHEMICAL AND PHYSICAL AGENTS THAT ARE NOT A PART OF THE BIOLOGICAL EXPERIENCE OF MAN. D.D.T., FOR INSTANCE IS TOXIC TO FISH AND HAS BEEN LINKED TO STERILITY IN BIRDS; THERE IS ALSO EVIDENCE THAT IT CAN BE DETRIMENTAL TO THE HEALTH OF MAN (CARSON, 1962).

#### FLUCTUATING WATER LEVELS

WATER LOSS DUE TO EVAPORATION USUALLY OCCURS IN IMPOUNDMENTS IN LATE SUMMER. WITH RESPECT TO USABILITY OF WATERS FOR RECREATIONAL PURPOSES, SUCH LOSSES ARE NOT PARTICULARLY SIGNIFICANT. SOME OF THE SMALLER STREAMS LOSE THEIR FLOW AND CONTAIN ONLY POOLS DURING EXTENDED PERIODS OF NO RAINFALL, BUT THERE IS LITTLE RECREATIONAL ACTIVITY ON THOSE STRETCHES OF STREAMS EVEN IN HIGH WATER, SO THE LOSS FROM THAT STANDPOINT IS FOR PRACTICAL PURPOSES IMMATERIAL.

HIGH WATER LEVELS IN STREAMS CAN POSE A FISHERIES MANAGEMENT PROBLEM FOR ADJACENT PONDS AND LAKES BY ALLOWING THE ENTRANCE OF UNDESIRABLE FISHES. THE POSSIBILITY OF SUCH CONTAMINATION SHOULD BE TAKEN INTO CONSIDERATION BY ANYONE INTERESTED IN CREATING FISHING OR FISH REARING WATERS IN AREAS WHERE FLOODING MAY OCCUR.

#### THE FUTURE

IF FRANKLIN COUNTY IS TO HAVE QUALITY WATER ORIENTED RECREATION IN THE FUTURE, WISE MANAGEMENT OF EXISTING RESOURCES AND THE ADDITION OF NEW ONES WILL BE IMPORTANT PARTICULARLY AS THE POPULATION BEGINS TO INCREASE. WITH GREATER NUMBERS OF PEOPLE, FASTER HIGHWAYS AND MORE LEISURE TIME, USAGE WILL MULTIPLY AND WITH IT WILL COME SHARPER CONFLICTS OF INTEREST. BUT AS LONG AS SUCCESSIVE GENERATIONS REGARD OUTDOOR RECREATION AND ASSOCIATED AESTHETICS AS BEING IMPORTANT TO THE BASIC WELFARE OF MANKIND, THE FUTURE PROBLEMS WOULD NOT SEEM INSURMOUNTABLE.

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## GLOSSARY

ACRE FOOT - AN AREA OF ONE ACRE COVERED TO A DEPTH OF ONE FOOT. ONE ACRE FOOT IS 43,560 CUBIC FEET OR 325,851 GALLONS OF WATER.

AESTHETICS - THE OVERALL SCENIC ATTRACTION OF A LAKE SETTING; NATURAL BEAUTY OF SHORES AND WATERS, OR ANY UNUSUAL NATURAL PHENOMENA; THE APPEAL OF ITS WILDLIFE AND AQUATIC PLANTS.

ALGAE BLOOM - A BLOOM OF ALGAE (MICROSCOPIC PLANTS) MAY BE SO DENSE THAT IT IMPARTS A GREENISH, YELLOWISH OR BROWNISH COLOR TO THE WATER.

ALKALINITY - ORDINARILY EXPRESSED AS A PH ABOVE 7. MOST WATER IN THE ALKALINE CLASS HAS A RANGE FROM PH 7.6 TO 10.0. ALKALINITY MAY BE EXPRESSED AS THE AMOUNTS OF CARBONATES, BICARBONATES, AND HYDROXIDES PRESENT IN THE WATER.

ALLUVIUM - THE SEDIMENTS, OR DETRITAL MATTER, CARRIED BY INFLOWING STREAMS AND DEPOSITED ON LAKE BOTTOMS.

ANTICLINE - AN ARCH OF STRATIFIED ROCK IN WHICH LAYERS BEND DOWNWARD IN OPPOSITE DIRECTIONS FROM THE CREST.

AQUATIC PLANTS - PLANTS WHOSE SEEDS GERMINATE IN THE WATER OR IN THE LAKE BOTTOM SOIL; THOSE THAT GROW IN WATER AND ARE COMMONLY GROUPED AS FLOATING, SUBMERSED AND EMERSED.

AQUIFER - ANY GEOLOGICAL FORMATION CONTAINING WATER, ESPECIALLY ONE WHICH SUPPLIES THE WATER FOR WELLS AND SPRINGS.

ARTIFICIAL IMPOUNDMENT - BASINS PURPOSELY EXCAVATED BY MAN AND FILLED WITH WATER BY CATCHMENT FROM RUNOFF, BY PUMPING OR BY DIVERSION OF NATURAL WATER BODIES.

BASE FLOW - FLOW IN A STREAM WHEN NO RUNOFF OR PRECIPITATION IS TAKING PLACE.

BOD - THE ABBREVIATION FOR BIOCHEMICAL OXYGEN DEMAND WHICH IS A MEASURE OF THE AMOUNT OF WATER SOLUBLE OXYGEN REQUIRED BY MICROSCOPIC ORGANISMS TO DECOMPOSE A GIVEN AMOUNT OF ORGANIC MATERIAL IN A SPECIFIC AMOUNT OF TIME.

COD - ABBREVIATION FOR CHEMICAL OXYGEN DEMAND WHICH IS A MEASURE OF THE CHEMICALLY OXIDIZABLE ORGANIC MATTER IN A GIVEN SAMPLE OF WATER. THE RATIO BETWEEN THE BOD AND COD IS AN INDICATION OF THE RELATIVE PROPORTION OF BIOLOGICALLY AVAILABLE ORGANIC MATTER IN A GIVEN SAMPLE.

CARRYING CAPACITY - THE MAXIMUM NUMBER (OR WEIGHT) OF ORGANISMS OF A GIVEN SPECIES AND QUALITY WHICH CAN SURVIVE IN A GIVEN ECOSYSTEM THROUGH THE LEAST FAVORABLE ENVIRONMENTAL CONDITIONS THAT OCCUR WITHIN A STATED INTERVAL OF TIME.

COMMERCIAL FISH - FISH THAT ARE CAUGHT BY SPECIAL TACKLE AND SOLD.

CREEL CENSUS - INFORMATION OBTAINED FROM ANGLERS ON THEIR FISHING SUCCESS. A CREEL CENSUS CAN GIVE INFORMATION ON FISHING PRESSURE, FISHING QUALITY, THE TOTAL NUMBER AND WEIGHT OF FISH BEING HARVESTED, AND THE KIND AND SIZE OF FISH BEING CAUGHT.

DERELICT LANDS - THOSE QUARRIES, GRAVEL PITS AND STRIP MINES WHICH HAVE BEEN ABANDONED OR ARE DEPLETED.

DO - AN ABBREVIATION FOR DISSOLVED OXYGEN WHICH IS OXYGEN AVAILABLE IN WATER FOR THE SURVIVAL OF FISH AND OTHER ORGANISMS.

DRAINAGE BASIN OR AREA - THAT PART OF A LAND AREA OVER WHICH RUNOFF WATER DRAINS TO A COMMON POINT. SEE WATERSHED.

ECOLOGICAL - PERTAINING TO THE INTERRELATIONSHIP OF LIVING THINGS AND THEIR ENVIRONMENT.

ECOSYSTEM - A COMMUNITY OF ORGANISMS, INTERACTING WITH ONE ANOTHER, PLUS THE ENVIRONMENT IN WHICH THEY LIVE AND WITH WHICH THEY ALSO INTERACT; E.G. A POND, LAKE OR STREAM.

EPHEMERAL - LASTING A VERY SHORT TIME; SHORT-LIVED; AS APPLIED TO WATER AREAS - SHORT-LIVED LAKES AND PONDS.

EPI LIMNION - IN A THERMALLY STRATIFIED LAKE, THE TURBULENT LAYER OF WATER THAT EXTENDS FROM THE SURFACE TO THE THERMOCLINE.

ESKER - A SERPENTINE RIDGE OF GRAVELLY AND SANDY DRIFT BELIEVED TO HAVE BEEN FORMED BY STREAMS UNDER OR IN GLACIAL ICE.

EUTROPHICATION - ENRICHMENT OF THE WATER OR LAKE SOIL. INCREASE IN NUTRIENTS REQUIRED FOR GROWTH OF ORGANISMS MAY COME ABOUT BY NATURAL PROCESSES OR RAPID ENRICHMENT MAY TAKE PLACE DUE TO SOME CAUSE SUCH AS THE INTRODUCTION OF SEWAGE EFFLUENT. EUTROPHIC LAKES ARE WELL PROVIDED WITH BASIC NUTRIENTS.

EVAPOTRANSPIRATION - THE COMBINED LOSSES FROM A LAKE SURFACE DUE TO EVAPORATION, SUBLIMATION, AND TRANSPIRATION FROM PLANT LIFE.

FLATS - WATER WITH SLIGHT TO MODERATE CURRENT AND WITH AN UNBROKEN SURFACE BUT LESS DEPTH THAN POOLS.

FLOODPLAIN - THAT PART OF A LAKE OR STREAM BASIN LYING BETWEEN THE SHORELINE AND THE SHORE CLIFF AND SUBJECT TO SUBMERGENCE DURING A HIGH WATER STAGE.

FLUVIAL - PERTAINING TO STREAMS AND RIVERS.

FORAGE FISH - ALL SMALL SIZE FISH USED AS FOOD BY LARGER FISH.

GLACIAL DRIFT - MATERIAL OF ANY SORT DEPOSITED IN ONE PLACE BY GLACIAL ACTION AFTER HAVING BEEN MOVED FROM ANOTHER LOCATION.

GLACIAL LAKE - A LAKE FORMED AS A RESULT OF GLACIAL ACTION.

GLACIAL OUTWASH - DEPOSITS MADE OF MATERIALS PRODUCED BY GLACIERS AND CARRIED, SORTED AND DEPOSITED BY WATER THAT ORIGINATED MAINLY FROM THE MELTING GLACIAL ICE. THE DEPOSITS NOW EXIST AS STRATIFIED BEDS OF CLAY, SAND, OR GRAVEL IN THE FORM OF PLAINS, VALLEY TRAINS, AND DELTAS OF OLD GLACIAL LAKES.

GLACIAL PLAINS - GLACIAL MATERIAL THAT HAS BEEN SORTED OR STRATIFIED BY THE MELT-WATER OF A GLACIER AND IS CARRIED AND DEPOSITED MAINLY AS BEDS OF CLAY, SAND, AND GRAVEL TO FORM PLAINS.

GLACIAL TILL - A DEPOSIT OF UNSTRATIFIED EARTH, SAND, GRAVEL, AND BOULDERS TRANSPORTED BY GLACIERS.

GOB-PILE - THE REFUSE AREA FROM A COAL PROCESSING PLANT CONSISTING OF WASTE COAL BY-PRODUCTS, ROCK MATERIAL AND SOIL.

GRADIENT - THE INCLINATION FROM THE HORIZONTAL OF THE LAKE BOTTOM BEGINNING AT THE SHORELINE. THE SLOPE OF A STREAM OVER A GIVEN DISTANCE.

GRAVEL PIT - LAKES OR PONDS FORMED BY THE EXCAVATION OF GRAVEL.

GROUNDWATER TABLE - THE UPPER LIMIT OF THE PART OF THE SOIL OR UNDERLYING MATERIAL WHOLLY SATURATED WITH WATER.

HARDNESS (WATER) - THAT QUALITY IN WATER WHICH IS IMPARTED BY THE PRESENCE OF DISSOLVED SALTS; ESPECIALLY CALCIUM SULFATE OR BICARBONATE.

HOMOGENEOUS - COMPOSED OF PARTS ALL OF THE SAME KIND.

HYPOLIMNION - IN A THERMALLY STRATIFIED LAKE, THE LAYER OF WATER BELOW THE THERMOCLINE AND EXTENDING TO THE BOTTOM OF THE LAKE. THE WATER TEMPERATURE IS VIRTUALLY UNIFORM.

IMPOUNDMENT - A BODY OF WATER PONDED OR HELD BACK BY A DAM, DIKE, FLOODGATE, OR ANY OTHER BARRIER.

INTERMITTENT STREAM - A STREAM HAVING WATER ONLY PART OF THE TIME.

KAME - A MORE OR LESS ROUNDED HILL OF SAND AND GRAVEL ASSOCIATED WITH GLACIAL DEPOSITS.

LACUSTRINE DEPOSIT - MATERIALS DEPOSITED FROM LAKE WATER.

LAKE - A LARGE BODY OF WATER SURROUNDED BY LAND. THE ILLINOIS DEPARTMENT OF CONSERVATION CLASSIFIES ALL IMPOUNDMENTS SIX SURFACE ACRES OR LARGER AS LAKES.

LITTORAL ZONE - A NARROW ZONE INCLUDING BOTH LAND AND WATER IMMEDIATELY BORDERING THE SHORELINE OF A WATER AREA.

LOAM - A RICH FRIABLE SOIL CONTAINING A RELATIVELY EQUAL MIXTURE OF SAND AND SILT AND A SOMEWHAT SMALLER PORTION OF CLAY.

LOESS - AN UNSTRATIFIED DEPOSIT OF YELLOWISH-BROWN LOAM COVERING AREAS IN NORTH AMERICA, EUROPE, AND ASIA, NOW GENERALLY THOUGHT TO BE CHIEFLY A WIND-BORNE DEPOSIT.

MARSH - AN AREA WHERE WATER STANDS THE YEAR-ROUND AND IS USUALLY ABUNDING IN WATER WEEDS, CATTAIL, BULRUSHES, AND OTHER EMERSED VEGETATION.

MGD - AN ABBREVIATION FOR MILLION GALLONS PER DAY.

MORaine - A RIDGE, MOUND, OR IRREGULAR MASS OF BOULDERS, GRAVEL, SAND, AND CLAY DEPOSITED BY A GLACIER.

MORPHOMETRY - MEASUREMENTS SUCH AS DEPTH, LENGTH, WIDTH, VOLUME, SHORELINE, AND BOTTOM GRADIENTS OF A WATER AREA.

NATURAL LAKE - ANY LARGE IMPOUNDED WATER AREA NOT FORMED BY AN ACT OF MAN.

NURSERY STREAM - A TRIBUTARY STREAM USED BY SMALL FISH FOR PROTECTION AND FEEDING UNTIL THEY REACH MATURITY.

OXBOW LAKE - A LAKE OCCUPYING THE ABANDONED CHANNEL OF A LOOPING MEANDER OF A RIVER.

PARAMETER - A CONSTANT OR VARIABLE TERM IN A FUNCTION THAT DETERMINES THE SPECIFIC FORM OF THE FUNCTION BUT NOT ITS GENERAL NATURE.

PERMEABLE SOILS - SOILS CAPABLE OF ALLOWING THE PASSAGE OF WATER. A POROUS SOIL.

pH - THE SYMBOL FOR THE LOGARITHM OF THE RECIPROCAL OF HYDROGEN ION CONCENTRATION IN GRAM ATOMS PER LITER. A pH OF LESS THAN 7.0 IS ACID, A pH OF 7 NEUTRAL AND MORE THAN 7.0 IS ALKALINE. pH INDICATES THE ACIDITY OR ALKALINITY OF A MATERIAL.

PHOTOSYNTHESIS - THE PROCESS BY WHICH GREEN PLANTS USE SUNLIGHT, CARBON DIOXIDE, AND WATER TO PRODUCE CARBOHYDRATES AND OXYGEN.

PHYSIOGRAPHY - THE SCIENCE OF PHYSICAL GEOGRAPHY. A STUDY OF THE FEATURES AND NATURE OF THE EARTH'S SURFACE.

PLANKTON - A TERM FOR AN ASSEMBLAGE OF MICRO-ORGANISMS, BOTH PLANT AND ANIMAL, WHICH FLOAT, DRIFT, OR SWIM IN THE WATER AND IN THEIR MOVEMENTS ARE SUBJECT TO WAVE AND CURRENT ACTION.

POLLUTION - THE PRESENCE OF ANY FOREIGN SUBSTANCE IN WATER WHICH TENDS TO DEGRADE ITS QUALITY SO AS TO CONSTITUTE A HAZARD OR IMPAIR THE USEFULNESS OF THE WATER.

POND - A SMALL BODY OF WATER SURROUNDED BY LAND. THE ILLINOIS DEPARTMENT OF CONSERVATION CLASSIFIES ALL IMPOUNDMENTS LESS THAN SIX SURFACE ACRES AS PONDS.

POOLS - DEEPER PORTIONS OF A STREAM USUALLY WITH A SMOOTH SURFACE AND SLOW FLOW.

PPM - ABBREVIATION FOR PARTS PER MILLION IN TERMS OF UNITS OF WEIGHT. USED TO REPORT THE AVAILABILITY OR PRESENCE OF SALTS, NUTRIENTS, GASES AND TOXIC MATERIAL IN WATER.

PRIMARY PRODUCTIVITY - THE RATE AT WHICH ENERGY IS STORED BY PHOTOSYNTHETIC AND CHEMO-SYNTHETIC ACTIVITY OF PRODUCER ORGANISMS (GREEN PLANTS) IN THE FORM OF ORGANIC SUBSTANCES WHICH CAN BE USED AS FOOD MATERIALS.

REHABILITATION - TO RESTORE TO A GOOD CONDITION. IN THE CASE OF UNDESIRABLE FISH POPULATIONS, THE POPULATION IS REMOVED IN WHOLE OR PART IN ORDER TO RESTORE IT TO A GOOD CONDITION.

RELIEF - A CONTOUR VARIATION OF THE LAND SURFACE IN RELATION TO THE SURROUNDING LAND.

RIFFLES - SHALLOW BUT RAPID CURRENT OVER GRAVEL OR RUBBLE.

ROTENONE - A PLANT ALKALOID AND IS THE ACTIVE INGREDIENT IN DERRIS POWDER, CUBE, BARBASCO, AKAR TUBA, AND ALSO IN THE CURRENTLY AVAILABLE FISH TOXICANTS FOR USE IN KILLING FISH.

RUNS - MODERATE TO RAPID CURRENT FLOWING IN A DEEPER NARROWER CHANNEL THAN A RIFFLE BUT THE CURRENT IS NOT AS TURBULENT AS IN A RAPID.



SECCHI DISC - A CIRCULAR PLATE 20 CENTIMETERS IN DIAMETER THE UPPER SURFACE OF WHICH IS DIVIDED INTO FOUR EQUAL QUADRANTS AND SO POINTED THAT TWO QUADRANTS DIRECTLY OPPOSITE EACH OTHER ARE BLACK AND THE INTERVENING ONES WHITE. THE INSTRUMENT IS USED TO MEASURE LIGHT PENETRATION IN WATER.

SILTATION - THE FILLING OF WATER AREAS BY SEDIMENTS CARRIED IN BY INFLOWING SURFACE WATER.

SPORT FISH - ANY FISH THAT IS SOUGHT AFTER BY ANGLERS USING A POLE AND LINE.

STRATIGRAPHY - A BRANCH OF GEOLOGY DEALING WITH THE CLASSIFICATION, NOMENCLATURE, CORRELATION, AND INTERPRETATION OF STRATIFIED ROCKS.

STRIPMINE LAKE OR POND - WATER IMPOUNDMENTS RESULTING FROM COAL MINING OPERATIONS NEAR THE SURFACE OF THE GROUND.

SUBSTRATE - THE BOTTOM DEPOSITS OF A LAKE OR STREAM ON WHICH ORGANISMS MAY GROW.

SYNCLINE - SLOPING DOWNWARD IN OPPOSITE DIRECTIONS SO AS TO MEET IN A COMMON POINT OR LINE. A DOWNWARD FOLD OF ROCK STRATA.

TAILWATER - THE PORTION OF A STREAM IMMEDIATELY BELOW A DAM.

TERMINAL MORaine - A RIDGE OF GLACIAL TILL MARKING THE FARTHEST ADVANCE OF A PARTICULAR GLACIER.

THERMAL STRATIFICATION - DIFFERENCES IN WATER TEMPERATURE FROM THE SURFACE TO THE BOTTOM IN WHICH DISTINCT LAYERS CAUSED BY TEMPERATURE GRADIENTS AND RESULTING CHANGES IN WATER DENSITY.

THERMOCLINE - THE STRATUM OF WATER IN WHICH THERE IS A RAPID RATE OF DECREASE IN TEMPERATURE WITH DEPTH; A MINIMUM OF ONE DEGREE CENTIGRADE PER METER OF DEPTH. THE THERMOCLINE IS LOCATED IMMEDIATELY BELOW THE EPI-LIMNION.

TOPOGRAPHY - THE DETAILED MAPPING OR CHARTING OF THE FEATURES OF A RELATIVELY SMALL AREA, DISTRICT, OR LOCALITY. THE RELIEF FEATURES OR SURFACE CONFIGURATION OF AN AREA.

TURBIDITY - THE DEGREE OF OPAQUENESS OF WATER DUE TO THE AMOUNT OF FINE MATTER IN SUSPENSION.

WATERSHED - THE WHOLE SURFACE DRAINAGE AREA THAT CONTRIBUTES WATER TO A STREAM OR IMPOUNDMENT.

WETLANDS - LAND FEATURES THAT ARE PERMANENTLY WET OR INTERMITTENTLY WATER COVERED SUCH AS SWAMPS, MARSHES, BOGS, MUSKEGS, POTHoles, SWALES, GLADES, SLASHES, AND OVERFLOW LAND OF RIVER VALLEYS.

WINTERKILL - PARTIAL OR COMPLETE LOSS OF FISH AND ANIMAL LIFE OF A WATER AREA DUE TO THE FORMATION OF A COMPLETE ICE COVER CAUSING OXYGEN DEPLETION FROM WATER STAGNATION.

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